# Energy Supply and Demand

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SUBMISSION TO THE
NATIONAL ENERGY BOARD

# UPDATE OF ENERGY SUPPLY AND DEMAND

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SUBMISSION BY THE

SASKATCHEWAN DEPARTMENT
OF ENERGY AND MINES

JANUARY, 1984

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Saskatchewan

Saskatchewan
Energy and Mines

Deputy Minister

1914 Hamilton Street
Regina, Canada
S4P 4V4

February 9, 1984

Mr. G. Yorke Slader
Secretary
National Energy Board
Ottawa, Ontario

Dear Mr. Slader,

In response to your letter of October 14, 1983, requesting an update of Saskatchewan energy supply and demand forecasts for the 1983-2005 period, I am pleased to submit the information required by the National Energy Board for the update.

Any communications respecting this submission should be directed to:

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Respectfully submitted,

Bob Reid

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Deputy Minister
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## INTRODUCTION

The Saskatchewan Department of Energy and Mines (the Department) is pleased to submit information and analysis to the National Energy Board (the Board) regarding an updated forecast of energy supply and demand for the 1983-2005 period. This submission is an update of the Department's submission to the Board in 1980. The following energy supply and demand topics are addressed as requested in the Board's Outline for Submissions:


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## A. SUPPLY

### (1) RESERVES AND PRODUCTIVE CAPACITY OF CRUDE OIL

In addressing the supply of conventional crude oil from non-frontier areas, the Department presents forecasts and related data for Saskatchewan crude oil for each of the following categories:

(a) established reserves at 31 December 1982, and

(b) future reserves additions from:

(i) appreciation and new discoveries, and

(ii) enhanced oil recovery.

The basic assumptions used in the preparation of the crude oil supply forecasts are addressed below.

World oil prices are assumed to increase moderately during the forecast period. The oil price forecast used in the supply analysis assumes a decrease of 6 per cent in real terms in 1984, a decrease of 2 per cent in real terms in 1985, and zero real annual price increases thereafter.* The Department further assumes that Canadian oil prices will be decontrolled by the end of 1986.

A forecast of equivalent world prices (NORP) at the wellhead for each major producing area in the province is presented in Appendix I. The average quality of the oil in each area is also listed.

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*based on an assumed price deflator of 6 per cent per year.

A forecast of producer netbacks has also been presented in Appendixes II and III based on the price forecast given assuming no major change in federal or provincial royalty/tax policies. These netbacks are for new develcpments, other than enhanced oil recovery, before and after any royalties.

Markets are not expected to be a limiting factor in terms of the development of future oil supplies in the province. The August 1983 announcement of a 50,000 barrel (8000 cubic metre) per day heavy oil upgrader for Regina will provide a secure and stable market for a considerable amount of production which traditionally has had to rely upon the export market. Negotiations on a second upgrader for the Lloydminster area are also continuing at this time. The Department has not incorporated the possible impact of a second upgrader in the current forecast because of its uncertainty.

(a) Established Reserves at 31 December, 1982

Reserves and producibility estimates for Saskatchewan pools mentioned in the Board's Outline for Submissions are presented in Appendix IV. Corresponding data for the "Other" pools were aggregated by pipeline feeder system.

A summary of the total producibility from established reserves for each pipeline system and for the total province of Saskatchewan is provided in Tables I to IX with the suffix "A".

It should be noted that those light oil pools previously considered as "Batched Light" and included as part of the Westspur Pipeline - S.E. Saskatchewan Medium system have been included in the Westspur Pipeline - S.E. Saskatchewan Light grouping for the 1982 and future Department reports and for this forecast. This fact must be taken into consideration when comparing previous forecasts to the current forecast.

Decline curve analysis is the principal method employed by the Department in forecasting producibility. Producibility estimates were made on an individual pool basis and then grouped by pipeline system.

The general guidelines used in estimating the economic production limit of each reservoir assumed that production ceased when either:

(a) oil production reached a level equal to half of the present wells in the pool times the assumed economic production limit per well; or

(b) the proportion of water production was estimated to reach 95 percent of total fluid production.

It should be noted that there are several pools currently producing at a watercut greater than 95 percent.

The present forecast of established reserves indicates that the remaining recoverable reserves as of December 31, 1982 was 98.3 million cubic metres. Approximately 88 per cent of those reserves could be

produced by the end of the forecast period based on the producibility estimates. Producibility from established reserves in Saskatchewan will decline from a level of approximately 24,530 cubic metres per day in 1983 to 2,484 cubic metres per day in the year 2005 for an average annual decline rate of 9.9 per cent. The decline rate has increased from the 1980 submission (9.0 per cent) due primarily to an adjustment to the decline rates for primary heavy oil production. The following table outlines the average decline rates of established reserves during the forecast period by each area in the province.

| | Average Decline Rate of Established Reserves % |
|---|---|
| Husky Pipeline Ltd. and Manito Pipelines Ltd. (heavy) | 14.6 |
| Bow River Pipe Lines Ltd. and Cactus Lake Pipeline System (light) | 7.3 |
| (heavy) | 11.7 |
| South Saskatchewan Pipeline Company (medium) | 12.0 |
| Westspur Pipe Line Company (light) | 9.5 |
| (medium) | 6.8 |
| Provincial Average | 9.9 |

(b) Future Reserves Additions

Tables I to IX with the suffix "B" outline the Department's forecast of reserves additions and productive capacities. Total reserves additions for the forecast period are expected to be 192.5 million cubic metres, for an average addition of 8.4 million cubic metres per

year. In comparison, the Department's 1980 forecast projected an average annual addition of 10.4 million cubic metres. The change is largely due to a downward adjustment in the expected response of enhanced oil recovery for the heavy oil areas. Total remaining recoverable oil reserves will peak in 1987 and then decline during the remainder of the forecast period.

Figure X provides a graphic comparison of the forecast future reserves additions with the recoverable reserves estimates established as of December 31, 1982 by producing area.

Producibility from future reserves additions is expected to account for slightly more than 50 per cent of our total productive capacity by 1990. This share will grow to 90 per cent by the end of the forecast period.

(i) Appreciation and New Discoveries

Exploration and development drilling (including infill drilling) is expected to contribute 89.4 million cubic metres or 46 per cent of the total reserves additions forecast for the 23 year period. According to the Board's guidelines, reserves additions due to waterflooding have been included under the enhanced oil recovery category rather than appreciation.

The Department's forecast of reserves additions from new discoveries and appreciation is based on likely geological limitations

and projections from recent drilling and land acquisition statistics. The current forecast for this category is somewhat more optimistic than that presented in 1980 primarily due to the recent drilling success in Saskatchewan. The provision of world prices and more favourable royalty and tax treatment has largely been responsible for the increased drilling activity. Conventional drilling is expected to be the major source of reserves additions during this decade.

The current drilling forecast assumes that the light and medium oil producing areas will provide a more significant contribution than had been projected in 1980.

The recoverable reserve estimates per completed well that were used in the current forecast are presented below by producing area/pipeline system. The estimates are for primary recovery only.

| | Recoverable Reserves Per Well (cubic metres) |
|---|---|
| Husky Pipeline Ltd. and Manito Pipelines Ltd. (heavy) | 8,000 |
| Bow River Pipe Lines Ltd. and Cactus Lake Pipeline System (light) | 5,100 |
| (heavy) | 10,400 |
| South Saskatchewan Pipeline Company (medium) | 11,100 |
| Westspur Pipe Line Company (light) | 10,700 |
| (medium) | 13,500 |

Producibility from reserve appreciation and new discoveries was estimated on the basis of historically derived reserves-to-production ratios. Reserves-to-production ratios were derived for each producing area to account for differing production characteristics.

Infill drilling is expected to increase because of the recent pricing change for production from this type of development. Several pools in the Kindersley light oil producing area (served by Bow River Pipeline) are expected to be infilled on 1 legal subdivison (40 acre) spacing units based on the experience in the Dodsland Viking Sand Pool. Additional pools in the other light and medium producing areas have been identified as good candidates for infill drilling. Infill drilling in the heavy oil areas is considered unlikely unless associated with enhanced oil recovery.

Deep drilling is not expected to contribute significantly to the current reserves additions forecast due to the lack of success to date.

(ii) Enhanced Oil Recovery

Enhanced oil recovery, for the purposes of this forecast, refers to all methods of recovery employed beyond the primary recovery stage. While the Department believes that some potential remains for adding reserves by waterflooding, the greatest potential for enhancing recovery exists with the employment of tertiary recovery techniques. The application of tertiary recovery to Saskatchewan's vast heavy oil reserves could be particularly significant given the limited recovery of these reserves under primary and secondary means.

The rate of tertiary development will be dependent upon economic and technological constraints. As stated earlier, market accessability is not considered to be a limiting factor in this forecast. While considerable progress has been made in terms of reducing the economic risks of EOR through the provision of world prices and low cost sensitive royalties/taxes, many technological risks remain. The Department, through it's EOR royalty/tax structure and heavy oil research and development grants, is encouraging industry to experiment with EOR techniques in the province with a view towards reducing the technological risks.

Reserves additions from enhanced oil recovery are forecast to be 103.1 million cubic metres or 54 per cent of the total reserves additions during the forecast period. Tertiary recovery methods are assumed to account for approximately 95 per cent of the enhanced recovery additions with waterflooding accounting for the remaining 5 per cent.

While most of the waterflood potential in the province has been exploited, there are several pools which could be candidates for new or expanded waterflood projects. These pools include the Dodsland Viking, Coleville Bakken, Cactus Lake Bakken, Success North Roseray, Beverley Cantuar, Freda Lake Ratcliffe, Tatagwa Midale, Bryant Midale, North Steelman Midale, East Carnduff Midale and Alameda North Midale pools or portions thereof.

Tertiary recovery is recognized as having vast potential for improving recovery. The Department has estimated that the tertiary recovery potential for the province could be approximately 600 million cubic metres. That is approximately 6 times the current estimate of remaining recoverable reserves. The Kindersley and Lloydminster heavy oil areas are considered the prime targets for tertiary recovery with approximately 85 per cent of the total potential likely to be realized in these areas.

There are nine experimental thermal recovery projects currently operating in the Lloydminster heavy oil area with four additional thermal projects operating in the Swift Current medium oil area. Two new projects have been approved by the Department for 1984 in the Lloydminster area. A hydrocarbon miscible pilot project was initiated in the southeast light oil area but has since been discontinued. One company is currently studying the possibility of implementing a carbon dioxide flood in southeast Saskatchewan.

To forecast the reserves additions and productive capacities due to tertiary recovery techniques, project models were designed for each area of the province. The models were based on the hypothetical development of a 1 section (640 acre) project in a typical reservoir for a given area assuming that thermal recovery techniques would be used in the heavy oil areas with carbon dioxide flooding considered the most likely mechanism to be used in the light and medium oil areas. The producibility estimates for the project models reflect

industry projections of performance as well as actual observed performance from the limited number of tertiary projects in operation within the province. The forecast was then prepared by assuming a possible schedule for the implementation of these model projects. While the methodology employed is similar to that used in the preparation of the 1980 forecast, the department has lowered the reserve and producibility estimates for the model projects to more closely reflect the performance of actual projects implemented to date.

## SUMMARY

The combined producibility forecast from established reserves and future reserves additions indicates that the province's productivity capacity will grow from 26,003 cubic metres per day in 1983 to a peak of 29,399 cubic metres per day in 1994 and will decline thereafter to a level of 23,630 cubic metres per day by the year 2005. This forecast is somewhat less optimistic than that presented by the department in 1980.

Figures 1 to 9 illustrate past production levels and forecast producibility levels for each pipeline system as well as for the total province. The illustrations of forecast producibility show the relative contribution from established reserves as well as future reserves additions.

## (2) RESERVES AND DELIVERABILITY OF NATURAL GAS

In accordance with the Board's Outline for Submissions, the Department presents established initial and remaining marketable natural gas reserves as of January 1, 1983. These reserves are defined according to the recommendations of the Joint Industry/Government Task Force on Uniform Reserves Terminology. An estimate of the ultimate potential of natural gas is also provided in accordance with the definition recommended by the Task Force.

### (a) Established Natural Gas Reserves

Established natural gas reserves in Saskatchewan are summarized by pool in Table X. As shown, Saskatchewan's initial marketable reserves as of January 1, 1983 were 66.1 billion cubic metres, while remaining marketable reserves were 36.6 billion cubic metres.

Established reserves are reviewed and reported annually in the Department's publication entitled Saskatchewan Petroleum and Natural Gas Reservoir Annual (Reservoir Annual). The Reservoir Annual reports only recoverable reserves for the "associated" and "non-associated" categories and marketable reserves for the "dissolved" category. Table X lists Saskatchewan's marketable and recoverable reserves for all categories. Recoverable reserves are based on wellhead production after assuming a surface loss at the wellhead of 5%. Marketable reserves are a measure of those reserves considered to be available for marketing by gas distributors and are equal to recoverable reserves less fuel and losses in field gathering and at the processing plant (where applicable). The distributor's losses and compressor

fuel are both considered marketable gas even though the same distributor may produce, gather and process the gas.

Initial gas-in-place is volumetrically determined on a pool-by-pool basis. Initial recoverable reserves are then determined by applying a suitable reservoir recovery factor based on pressure and/or production decline methods. A surface loss of 5% is assumed in determining recoverable reserves. Other factors such as water influx are also considered.

The miscellaneous non-producing reserves shown in Table X primarily include gas deferred for future use. These reserves include gas caps to be produced after oil in such reservoirs is depleted, and reserves remaining in gas storage projects to be produced once storage in these reservoirs is no longer required. This category also includes reserves from gas wells currently shut in because of prevailing market conditions.

The miscellaneous lease fuel shown in Table X is considered as being recoverable but not marketable gas. Lease fuel is gas produced and consumed by the oil industry and generally does not involve a connection to the provincial gas distribution system.

The dissolved gas reserves shown in Table X include only gas which is presently being gathered from oil fields. No reserves are assigned to dissolved gas that is uneconomical to gather. Recoverable

dissolved gas reserves are those delivered to gas plants while marketable dissolved gas reserves are estimated gas plant residue. Some of the heavier ends like propane, butane and pentanes plus are stripped in gas plant processing.

(b) Ultimate Potential of Natural Gas

Saskatchewan's ultimate potential of natural gas is estimated by the Department to range between 113 billion cubic metres and 198 billion cubic metres. This estimate is based on the Department's own analysis and is supported by several industry studies. For the purposes of this report, the Department estimates the ultimate potential to be 174.9 billion cubic metres in the forecast time frame.

The ultimate potential is the sum of the initial established reserves, reserve additions and extensions to existing discoveries and undiscovered potential. The initial established reserves are 79.4 billion cubic metres which are made up of remaining established reserves of 44.2 billion cubic metres and cumulative production of 35.2 billion cubic metres. The reserve additions and extensions to existing discoveries are 33 billion cubic metres. These reserves are not currently recognized as established reserves because of the uncertainty associated with their existence and recovery. The undiscovered potential is estimated to be 62.5 billion cubic metres in the forecast period.

The undiscovered potential represents 55% of the initial established reserves and the reserve additions and extensions. The Department is optimistic about this potential because the province has never enjoyed an extensive gas exploration program.

The remaining established reserves of 44.2 billion cubic metres as of January 1, 1983, are shown in Table XI. The reserve additions during the forecast period are shown in column 9 of Table XI and total 95.5 billion cubic metres.

A majority of the reserve additions and extensions are found in the shallow Milk River and Second White Specks formations in Southwest Saskatchewan. There is also a contribution by the Viking and Mannville Sands along the western edge of the province. The aforementioned zones in the western portion of the province also present the greatest potential for new discoveries.

(c) Deliverability of Natural Gas

Virtually all of the gas consumed in Saskatchewan, other than that consumed by TransCanada Pipelines Ltd., is delivered by the Saskatchewan Power Corporation (SPC) transmission system. A portion of the gas obtained by SPC from owned and contracted reserves in Alberta is delivered to Alberta consumers. This section concerns itself only with gas from Saskatchewan reserves, and gas from those reserves owned or contracted by SPC in Alberta which is delivered in Saskatchewan in order to meet provincial requirements for natural

gas. Any references herein to provincial requirements for natural gas do not include consumption by TransCanada Pipelines Ltd.

Given the above qualifications, the deliverability scenario for the SPC transmission system supplying gas to Saskatchewan is provided in Table XI. SPC's estimates of Saskatchewan requirements and Alberta supply, provided in columns (2) and (5) respectively, have been accepted by the Department as the most likely scenario. Those requirements, referred to in column (2), represent customer sales, internal use and losses.

Column (3) represents "other" gas requirements such as lease fuel and Steelman Gas exports. With the probable implementation of enhanced oil recovery (tertiary) projects in the province, column (3) takes into account natural gas which will be in demand as fuel for boilers in steamflood projects and as fuel to drive air compressors in the in situ combustion projects. Column (3) also takes into account increased natural gas requirements associated with a heavy oil upgrading facility assumed to commence operation late in 1987. Other sources of energy such as coal and crude oil may reduce these requirements.

In forecasting additions to established reserves, the Department has combined the new discoveries with the reserve additions and extensions to existing discoveries. The total forecast of reserve additions under this scenario amounts to 95.5 billion cubic metres.

These reserve additions are expected to result from the development of approximately 33 billion cubic metres of gas reserves currently identified within the province (which are in addition to established reserves), plus an additional 62.5 billion cubic metres due to new discoveries.

The Department has assumed a slight increase in gas development activity starting in the latter half of the 1980's in response to a higher demand for Saskatchewan gas and a gradual decrease in the supply from Alberta.

The deliverability from Saskatchewan reserves is forecast in column (10) of Table XI. The deliverability numbers reflect the Saskatchewan gas requirements until 1992 when a supply shortfall is forecast to occur. Until that time there will exist deliverability from Saskatchewan sources in excess of the requirements stated. The shortfall forecast commencing in 1992 is primarily due to the expiration of the supply contracts with TransCanada Pipelines Ltd.

Approximate levels of fieldgate prices for natural gas produced in Saskatchewan are from time to time the subject of review. For purposes of this scenario, it is therefore assumed that these prices will rise sufficiently over time in order to bring on-stream the reserves forecast to be developed herein.

(3) Supply of Other Forms of Energy

(a) Reserves and Producibility of Lignite Coal

Lignite Reserves

Saskatchewan lignite reserves outlined in Table IX of the Department's 1980 submission have decreased by total production of 25.3 million tonnes in the 1979-1982 period.

Production

(i) Historical - Lignite production during the 1979-1982 period was as follows:

Saskatchewan Lignite Production

| Year | Tonnes |
|---|---|
| 1979 | 5,011,669 |
| 1980 | 5,979,724 |
| 1981 | 6,798,297 |
| 1982 | 7,494,259 |

Source: Mineral Statistics Yearbook 1982
Saskatchewan Energy and Mines
Miscellaneous Report 83-3

Data on Saskatchewan coal production from 1972 to 1978 was provided in Table X of the Department's 1980 submission. Data for 1979 included in the 1980 submission have been corrected on the basis of updated information.

(ii) Forecast 1983-2005

The Department has adopted Saskatchewan Power Corporation's (SPC) forecast of lignite requirements for thermal generation. SPC's

forecast calls for a growth in lignite demand for thermal generation from 5.85 million tonnes in 1980 to 12.2 million tonnes in 2005.

In addition to demand by SPC, other lignite consumers including utilities in Manitoba and Ontario as well as industrial users in Saskatchewan and Manitoba should add approximately 25% per year to the SPC total.

(b) Reserves and Production of Uranium

Significant increases in uranium production occurred in the late 1970s after the Rabbit Lake mine came on stream in 1976 and 1977. The Cluff Lake production unit came on stream in 1981. The Beaverlodge production unit shut down during 1982 and is currently being decommissioned. The Key Lake production unit came on stream late in 1983 and should produce at close to its capacity of 5,443,000 kg $U_3O_8$ in 1984.

Uranium Reserves (Kg $U_3O_8 \times 10^6$)

| | |
|---|---|
| reasonably assured reserves | 155 x $10^6$ kg |
| estimated additional reserves | 80 x $10^6$ kg |
| Total | 235 x $10^6$ kg |

Saskatchewan Uranium Production ('000 kg $U_3O_8$)

| | |
|---|---|
| 1979 | 2,887 |
| 1980 | 2,809 |
| 1981 | 3,491 |
| 1982 | 3,491 |

## B. DEMAND

### (1) Introduction

Saskatchewan Energy and Mines has prepared demand forecasts for different energy sources for the 1983-2005 period to provide Saskatchewan data for the NEB update of domestic energy demand.

In keeping with the Guidelines for Submission, actual data has been provided for energy consumption by product and by sector for 1982, and historical data on total domestic energy demand and the demand for refined petroleum products during the 1979-1982 period has been included to update the information contained in the Department's 1980 submission.

### (2) Historical Background

Total domestic energy demand in Saskatchewan declined at an average annual rate of 1.3 per cent and the demand for refined petroleum products declined at an average annual rate of 2.9 per cent between 1979 and 1982. Demand for all energy sources except electricity, which experienced average annual load growth of 1.9 per cent between 1979 and 1982, declined during this period. Tables XII-XIX provide data on energy consumption in Saskatchewan from 1979 through 1982.

The reasons for this decline in domestic energy demand in Saskatchewan between 1979 and 1982 are complex, and include among other things the large increases in world and domestic energy prices during

the 1970s, the reduction in economic activity in the province during the recession, and the impact of conservation measures on energy consumption. The drop in energy consumption levels in the early 1980s followed several years of moderate energy demand growth in Saskatchewan between 1975 and 1978, which was documented in the Department's 1980 submission.

(3) Demand Forecasts

It is difficult to forecast energy demand trends in Saskatchewan during the 1983-2005 period with a high degree of certainty as a result of the significant changes in energy consumption patterns that have occurred in recent years, and continued uncertainty regarding which factors have been most responsible for these changes.

Saskatchewan Energy and Mines has attempted to deal with this uncertainty in the preparation of the energy demand forecasts for the 1983-2005 period by incorporating high and base case assumptions about future energy prices and economic growth rates in our analysis (Cases A and B, respectively), and comparing the results with those obtained using the oil price and economic growth assumptions outlined by the Board in the Guidelines for Submission (Cases C and D).

(a) Assumptions

The assumptions used to generate demand projections in the four cases were as follows:

CASE A (Saskatchewan High Demand Case):

(i) GNP increases by 1.8 per cent annually in real terms (1983-1988), and 1.5 per cent annually (1989-2005).

(ii) No increase in the real domestic and world price of oil (1983-1988); 0.5 per cent real annual oil price increase (1989-2005).

CASE B (Saskatchewan Base Case)

(i) GNP increases by 3.0 per cent annually in real terms (1983-1988); and 2.3 per cent annually (1989-2005).

(ii) The domestic and world price of oil increases by 1.5 per cent annually in real terms (1984-1988); and 2.0 per cent annually (1989-2005).

CASE C (NEB Low Demand Case)

(i) GNP increases by 4.5 per cent (1984-1988); and 3.0 per cent annually (1989-2005).

(ii) World price of oil increases at specified rates from $26.50 in 1984 to $46.00 in 2005.

CASE D (NEB High Demand Case)

(i) GNP increases by 4.5 per cent annually (1984-1988); and 3.0 per cent annually (1989-2005).

(ii) World price of oil remains constant in real terms (1984-2005).

Population growth estimates for Saskatchewan during the 1983-2005 period were taken from the latest forecast prepared by the Saskatchewan Bureau of Statistics:

SASKATCHEWAN POPULATION
('000)

| | |
|---|---|
| 1982 | 979.4 |
| 1983 | 992.7 |
| 1984 | 1013.9 |
| 1985 | 1027.3 |
| 1986 | 1041.0 |
| 1987 | 1054.0 |
| 1990 | 1082.8 |
| 1995 | 1097.7 |
| 2000 | 1103.1 |
| 2005 | 1108.5 |

The Department took the electricity and natural gas demand forecasts prepared by the Saskatchewan Power Corporation (SPC) for the 1983-2003 period as the base case for these two energy sources in our analysis, to provide consistency with SPC's submission to the National Energy Board for the update of domestic energy supply and demand.

Saskatchewan Energy and Mines' forecasts of coal, hydro, and natural gas demand in Case B are thus derived directly from data provided by SPC. Demand projections for coal, hydro, and natural gas in Cases A, C, and D reflect the different oil price and economic growth assumptions on which these alternative scenarios are based.

The forecasts of demand for coal, hydro, and natural gas in Cases A, C, and D and for oil and liquid petroleum gases in all four cases were derived using Energy Mines and Resources Canada's Interfuel Substitution Demand Model (IFSD). Demand growth rates obtained from the IFSD model with the different oil pricing and economic growth assumptions used in the four cases provided the basis for the energy demand projections made by Saskatchewan Energy and Mines. Actual Saskatchewan data for 1982, and for 1983 when available, were used as the base from which the Department's demand forecasts were made.

(b) Results

The forecasted average annual energy demand growth rates in the four cases were as follows:

Average Annual Growth Rates in Saskatchewan Energy Demand
1983-2005

| | | SEM High Demand Case | SEM Base Case | NEB Low Demand Case | NEB High Demand Case |
|---|---|---|---|---|---|
| | | Case A | Case B | Case C | Case D |
| TOTAL ENERGY DEMAND | 1983-1988 | 2.7% | 2.4% | 2.5% | 2.9% |
| | 1989-2005 | 1.4% | 1.2% | 1.2% | 1.5% |
| | 1983-2005 | 1.6% | 1.4% | 1.4% | 1.8% |
| REFINED PETROLEUM PRODUCTS | 1983-1988 | 1.3% | 1.0% | 1.1% | 1.8% |
| | 1989-2005 | 1.1% | 0.8% | 0.9% | 1.4% |
| | 1983-2005 | 1.1% | 0.8% | 0.9% | 1.5% |

Data on the total final demand, secondary, and primary demand projections for the four cases are contained in Tables XX-XXII and Figures XI-XXII.

Saskatchewan Energy and Mines' two scenarios, Cases A and B, represent potential future demand trends under economic conditions similar to those of the past few years in which low growth in the provincial economy occurred, and under conditions in which moderate, but sustained economic growth occurs, respectively.

Energy demand growth projections in Case B - Saskatchewan Energy and Mines' base case - were very similar to those in the Board's low demand case, Case C. Relatively large annual oil price increases were assumed in these two cases in comparison with the stable oil price regime of Cases A and D, which gave rise to higher energy demand projections than in Cases B and C.

These results suggest that future energy demand growth in Saskatchewan will be more sensitive to changes in the real level of world and domestic oil prices than it will to changes in the level of economic activity in the province. It should be noted that the structure of the IFSD Model and the historical data that it contains generate higher price elasticities than income elasticities. This has a significant bearing on the impact that different oil price and economic growth assumptions have on projections of energy demand trends.

(4) Supply/Demand Balances

The level of oil prices during the forecast period could also impact on the structure of energy demand in Saskatchewan, since the amount of interfuel substitution that occurs in different markets and sectors will

depend to a large extent on changes in oil prices relative to those of other fuels. It was noted in the Department's 1980 submission that opportunities for substituting alternative fuels for refined petroleum products were somewhat limited in Saskatchewan, due to technical and economic factors that discourage conversion at the point of use in the agricultural and transportation sectors.

(a) Rural Space Heating Market

The rural space heating market now appears to offer the greatest potential for interfuel substitution in the forecast period, since a major natural gas distribution system expansion programme is being undertaken by the Saskatchewan Power Corporation to extend natural gas service to approximately 35,000 rural residents during the next 10 years. When this programme is completed in the early 1990s, up to 178,000 cubic metres ($6.9 \times 10^{15}$ joules) of fuel oil could be saved annually by the substitution of natural gas for oil in the rural space heating market.

Electricity will also increase its market share in competition with fuel oil during the 1983-2005 period. Many of the remaining 22,000 rural residences outside the proposed rural gas distribution network are expected to convert from oil to alternative heating systems when their oil furnaces wear out or as a result of the increased cost of oil heating relative to electricity and other energy sources such as propane. SPC has forecasted that 15,000 farms will convert to electric space heating during the next twenty years. This could save

more than 76,000 cubic metres ($2.9 \times 10^{15}$ joules) of fuel oil if all 15,000 farms convert to full electric heating.

However, hybrid oil-electric heating systems may also achieve significant penetration of the Saskatchewan rural heating market during the forecast period. Installation of electric plenum heaters in oil furnaces could reduce average oil consumption per residence by up to 75 per cent annually ($147.5 \times 10^9$ joules).

(b) Other Markets/Sectors

Interfuel substitution in the other markets and sectors discussed in the Department's 1980 submission —

- northern uranium mines and communities which might use power from a prospective northern electrical grid in place of diesel generators

- potash mines with lignite-fired co-generation potential

- prospective electrification of gas pipeline compressor stations

- road transportation using alternative fuels such as compressed natural gas (CNG) and propane —

appears less promising now than it did four years ago as a result of scaled-down projections of future oil prices and economic growth rates.

Small projects currently under review such as a proposed electrical transmission line between Uranium City and the Rabbit Lake uranium mine, with tie-lines to nearby communities, and the proposed conversion of several commercial vehicle fleets to CNG, would not have a significant impact on oil consumption levels in the province if they were undertaken.

Co-generation at potash mines and electrification of gas pipeline compressor stations are not now under active consideration, as a result of the stabilization of natural gas prices under the terms of the energy agreements.

Conservation measures are also not expected to reduce the demand for oil and other conventional energy sources by as much as the Department forecasted in the 1980 submission, in large part because of the reduced scope for price-induced conservation during a period of relative oil price stability.

(5) Conclusions

Changes in energy demand trends that have occurred in Saskatchewan since the Department's 1980 submission will impact on supply/demand balances in different markets and sectors, but this is not expected to cause any disruptions in the delivery of energy services to Saskatchewan residents. This, of course, does not preclude the possibility that supply/demand imbalances could occur in the future as

a result of world oil supply disruptions or further oil price shocks. The Department has not addressed these possibilities in the demand forecasts prepared for the 1983-2005 period.

Much of the uncertainty regarding future energy demand growth following the recent changes in historical energy consumption trends documented here and in the Department's 1980 submission will remain as long as world and domestic economic conditions remain unstable. The forecasts prepared by Saskatchewan Energy and Mines for the update of energy supply and demand attempt to deal realistically with this uncertainty by incorporating a range of assumptions into the analysis about possible changes in the level of world and domestic oil prices and economic growth rates.

The results of the analysis indicate that future energy demand in Saskatchewan will be more sensitive to changes in oil prices than it will to changes in economic growth rates in the province. The close linkage between energy demand and economic growth that was noted by the NEB in its 1969 report, Energy Supply and Demand in Canada and Export Demand for Canadian Energy, 1966-1990, appears to have been altered as a result of the rapid escalation in world oil prices during the 1970s.

Growth in energy consumption in Saskatchewan has moderated in recent years in lagged response to world oil price increases, largely as a result of the protection of domestic oil prices from the full impact of these increases.

Saskatchewan Energy and Mines' energy demand forecasts for the 1983-2005 period suggest that this moderation in energy demand growth will continue for the foreseeable future.

Supply/demand balances are not expected to be significantly affected by this moderation in energy demand growth or the less optimistic oil supply forecast than that contained in the Department's 1980 submission. The larger net deficit in Saskatchewan natural gas supply relative to provincial requirements is not expected to cause supply/demand imbalances, due to the availability of Alberta natural gas to meet forecasted shortfalls in Saskatchewan supply beginning in 1992. Increased demand for coal and electricity is also not projected to exceed the available supply of either energy source.

The Department therefore remains confident of continued supply/demand balances in different markets and sectors, on the basis of the updated Saskatchewan energy supply and demand forecasts for the 1983-2005 period.

# TABLE I-A

## SASKATCHEWAN
## RESERVES AND PRODUCIBILITY FORECAST

### *** HUSKY PIPELINE LTD. AND MANITO PIPELINES LTD. ***

| Year | ESTABLISHED RESERVES | | RESERVES ADDITIONS (From Table I-B) | | | TOTAL RESERVES | |
|---|---|---|---|---|---|---|---|
| | Remaining Recoverable Reserves @ Jan. 1 | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Reserves Added | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Producibility |
| | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 23,233 | 6,395 | 0 | 2,720 | 436 | 23,233 | 6,831 |
| 1984 | 20,899 | 6,070 | 2,561 | 2,976 | 1,220 | 23,460 | 7,290 |
| 1985 | 18,683 | 5,320 | 5,092 | 3,760 | 2,185 | 23,775 | 7,505 |
| 1986 | 16,741 | 4,870 | 8,054 | 3,546 | 3,166 | 24,796 | 8,036 |
| 1987 | 14,964 | 4,190 | 10,444 | 3,140 | 4,017 | 25,408 | 8,207 |
| 1988 | 13,435 | 3,748 | 12,118 | 3,369 | 4,813 | 25,553 | 8,561 |
| 1989 | 12,067 | 3,358 | 13,730 | 3,131 | 5,503 | 25,797 | 8,861 |
| 1990 | 10,841 | 3,015 | 14,853 | 3,051 | 6,068 | 25,694 | 9,083 |
| 1991 | 9,740 | 2,709 | 15,689 | 2,888 | 6,535 | 25,429 | 9,244 |
| 1992 | 8,752 | 2,388 | 16,192 | 2,744 | 6,899 | 24,943 | 9,287 |
| 1993 | 7,880 | 2,151 | 16,418 | 2,572 | 7,153 | 24,298 | 9,304 |
| 1994 | 7,095 | 1,919 | 16,379 | 2,927 | 7,423 | 23,474 | 9,342 |
| 1995 | 6,394 | 1,588 | 16,596 | 2,827 | 7,579 | 22,991 | 9,167 |
| 1996 | 5,815 | 1,410 | 16,657 | 2,714 | 7,691 | 22,472 | 9,101 |
| 1997 | 5,300 | 1,129 | 16,564 | 2,639 | 7,751 | 21,864 | 8,880 |
| 1998 | 4,888 | 779 | 16,374 | 2,601 | 7,797 | 21,262 | 8,576 |
| 1999 | 4,604 | 659 | 16,129 | 2,508 | 7,816 | 20,733 | 8,475 |
| 2000 | 4,363 | 538 | 15,784 | 2,901 | 7,877 | 20,147 | 8,415 |
| 2001 | 4,167 | 377 | 15,810 | 2,907 | 7,946 | 19,977 | 8,323 |
| 2002 | 4,029 | 328 | 15,817 | 2,878 | 8,017 | 19,846 | 8,345 |
| 2003 | 3,910 | 248 | 15,768 | 2,878 | 8,099 | 19,678 | 8,347 |
| 2004 | 3,819 | 220 | 15,690 | 2,863 | 8,181 | 19,509 | 8,401 |
| 2005 | 3,739 | 198 | 15,567 | 2,862 | 8,249 | 19,306 | 8,447 |
| | | | | 67,402 | | | |

# TABLE I-B

## SASKATCHEWAN
## FORECAST OF RESERVES ADDITIONS AND PRODUCIBILITY

*** HUSKY PIPELINES LTD. AND MANITO PIPELINES LTD. ***

| Year | APPRECIATION AND NEW DISCOVERIES | | | ENHANCED OIL RECOVERY | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility |
| | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 0 | 1,792 | 233 | 0 | 928 | 203 | 0 | 2,720 | 436 |
| 1984 | 1,707 | 2,048 | 763 | 854 | 928 | 457 | 2,561 | 2,976 | 1,220 |
| 1985 | 3,476 | 2,368 | 1,346 | 1,615 | 1,392 | 839 | 5,092 | 3,760 | 2,185 |
| 1986 | 5,353 | 2,154 | 1,895 | 2,701 | 1,392 | 1,271 | 8,054 | 3,546 | 3,166 |
| 1987 | 6,815 | 1,748 | 2,301 | 3,629 | 1,392 | 1,716 | 10,444 | 3,140 | 4,017 |
| 1988 | 7,724 | 1,513 | 2,562 | 4,395 | 1,856 | 2,251 | 12,118 | 3,369 | 4,813 |
| 1989 | 8,301 | 1,275 | 2,717 | 5,429 | 1,856 | 2,786 | 13,730 | 3,131 | 5,503 |
| 1990 | 8,585 | 1,195 | 2,800 | 6,268 | 1,856 | 3,268 | 14,853 | 3,051 | 6,068 |
| 1991 | 8,758 | 1,032 | 2,835 | 6,931 | 1,856 | 3,700 | 15,689 | 2,888 | 6,535 |
| 1992 | 8,755 | 888 | 2,818 | 7,437 | 1,856 | 4,081 | 16,192 | 2,744 | 6,899 |
| 1993 | 8,614 | 716 | 2,755 | 7,803 | 1,856 | 4,398 | 16,418 | 2,572 | 7,153 |
| 1994 | 8,325 | 607 | 2,655 | 8,054 | 2,320 | 4,768 | 16,379 | 2,927 | 7,423 |
| 1995 | 7,963 | 507 | 2,531 | 8,634 | 2,320 | 5,048 | 16,596 | 2,827 | 7,579 |
| 1996 | 7,546 | 394 | 2,389 | 9,111 | 2,320 | 5,302 | 16,657 | 2,714 | 7,691 |
| 1997 | 7,068 | 319 | 2,233 | 9,496 | 2,320 | 5,518 | 16,564 | 2,639 | 7,751 |
| 1998 | 6,572 | 281 | 2,076 | 9,802 | 2,320 | 5,721 | 16,374 | 2,601 | 7,797 |
| 1999 | 6,095 | 188 | 1,916 | 10,034 | 2,320 | 5,900 | 16,129 | 2,508 | 7,816 |
| 2000 | 5,584 | 117 | 1,749 | 10,200 | 2,784 | 6,128 | 15,784 | 2,901 | 7,877 |
| 2001 | 5,062 | 123 | 1,589 | 10,747 | 2,784 | 6,357 | 15,810 | 2,907 | 7,946 |
| 2002 | 4,606 | 94 | 1,443 | 11,211 | 2,784 | 6,574 | 15,817 | 2,878 | 8,017 |
| 2003 | 4,173 | 94 | 1,309 | 11,596 | 2,784 | 6,790 | 15,768 | 2,878 | 8,099 |
| 2004 | 3,789 | 79 | 1,188 | 11,901 | 2,784 | 6,993 | 15,690 | 2,863 | 8,181 |
| 2005 | 3,434 | 78 | 1,078 | 12,133 | 2,784 | 7,171 | 15,567 | 2,862 | 8,249 |
| | | 19,610 | | | 47,792 | | | 67,402 | |

# TABLE II-A

## SASKATCHEWAN
## RESERVES AND PRODUCIBILITY FORECAST

### *** BOW RIVER PIPE LINES LTD.(HEAVY) AND CACTUS LAKE PIPELINE SYSTEM ***

| Year | ESTABLISHED RESERVES | | RESERVES ADDITIONS (From Table II-B) | | | TOTAL RESERVES | |
|---|---|---|---|---|---|---|---|
| | Remaining Recoverable Reserves @ Jan. 1 | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Reserves Added | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Producibility |
| | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 6,765 | 1,886 | | | | | |
| 1984 | 6,077 | 1,721 | 0 | 959 | 89 | 6,765 | 1,975 |
| 1985 | 5,448 | 1,575 | 927 | 1,134 | 303 | 7,003 | 2,024 |
| | | | 1,950 | 2,040 | 662 | 7,398 | 2,237 |
| 1986 | 4,874 | 1,436 | | | | | |
| 1987 | 4,349 | 1,301 | 3,748 | 2,354 | 1,171 | 8,622 | 2,607 |
| 1988 | 3,875 | 1,183 | 5,675 | 1,436 | 1,538 | 10,024 | 2,839 |
| 1989 | 3,443 | 1,074 | 6,550 | 1,289 | 1,822 | 10,424 | 3,005 |
| 1990 | 3,051 | 977 | 7,173 | 1,145 | 2,038 | 10,616 | 3,112 |
| | | | 7,575 | 1,003 | 2,210 | 10,625 | 3,187 |
| 1991 | 2,694 | 890 | | | | | |
| 1992 | 2,369 | 808 | 7,771 | 874 | 2,333 | 10,465 | 3,223 |
| 1993 | 2,074 | 732 | 7,793 | 769 | 2,434 | 10,163 | 3,242 |
| 1994 | 1,807 | 663 | 7,674 | 685 | 2,462 | 9,748 | 3,194 |
| 1995 | 1,565 | 604 | 7,460 | 643 | 2,488 | 9,268 | 3,151 |
| | | | 7,195 | 641 | 2,490 | 8,760 | 3,094 |
| 1996 | 1,345 | 543 | | | | | |
| 1997 | 1,147 | 476 | 6,927 | 620 | 2,482 | 8,272 | 3,025 |
| 1998 | 973 | 430 | 6,641 | 619 | 2,425 | 7,788 | 2,901 |
| 1999 | 816 | 396 | 6,375 | 607 | 2,391 | 7,348 | 2,821 |
| 2000 | 671 | 363 | 6,110 | 606 | 2,340 | 6,925 | 2,736 |
| | | | 5,862 | 595 | 2,293 | 6,533 | 2,656 |
| 2001 | 539 | 333 | | | | | |
| 2002 | 417 | 297 | 5,620 | 594 | 2,223 | 6,158 | 2,556 |
| 2003 | 309 | 231 | 5,402 | 574 | 2,180 | 5,819 | 2,477 |
| 2004 | 225 | 131 | 5,180 | 555 | 2,137 | 5,489 | 2,368 |
| 2005 | 177 | 122 | 4,955 | 554 | 2,094 | 5,180 | 2,225 |
| | | | 4,745 | 553 | 2,055 | 4,922 | 2,177 |
| | | | | 20,849 | | | |

# TABLE II-B

## SASKATCHEWAN
## FORECAST OF RESERVES ADDITIONS AND PRODUCIBILITY

### *** BOW RIVER PIPE LINES LTD.(HEAVY) AND CACTUS LAKE PIPELINE SYSTEM ***

| Year | APPRECIATION AND NEW DISCOVERIES | | | ENHANCED OIL RECOVERY | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility |
| | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 0 | 959 | 89 | 0 | 0 | 0 | 0 | 959 | 89 |
| 1984 | 927 | 1,134 | 303 | 0 | 0 | 0 | 927 | 1,134 | 303 |
| 1985 | 1,950 | 1,308 | 556 | 0 | 732 | 106 | 1,950 | 2,040 | 662 |
| 1986 | 3,055 | 1,122 | 806 | 693 | 1,232 | 365 | 3,748 | 2,354 | 1,171 |
| 1987 | 3,883 | 972 | 1,002 | 1,792 | 464 | 536 | 5,675 | 1,436 | 1,538 |
| 1988 | 4,489 | 825 | 1,147 | 2,060 | 464 | 675 | 6,550 | 1,289 | 1,822 |
| 1989 | 4,895 | 681 | 1,242 | 2,278 | 464 | 796 | 7,173 | 1,145 | 2,038 |
| 1990 | 5,123 | 539 | 1,292 | 2,452 | 464 | 918 | 7,575 | 1,003 | 2,210 |
| 1991 | 5,190 | 410 | 1,304 | 2,580 | 464 | 1,029 | 7,771 | 874 | 2,333 |
| 1992 | 5,125 | 305 | 1,284 | 2,669 | 464 | 1,150 | 7,793 | 769 | 2,434 |
| 1993 | 4,961 | 221 | 1,241 | 2,713 | 464 | 1,221 | 7,674 | 685 | 2,462 |
| 1994 | 4,729 | 179 | 1,184 | 2,731 | 464 | 1,304 | 7,460 | 643 | 2,488 |
| 1995 | 4,476 | 177 | 1,123 | 2,719 | 464 | 1,367 | 7,195 | 641 | 2,490 |
| 1996 | 4,243 | 156 | 1,064 | 2,685 | 464 | 1,418 | 6,927 | 620 | 2,482 |
| 1997 | 4,010 | 155 | 1,006 | 2,631 | 464 | 1,419 | 6,641 | 619 | 2,425 |
| 1998 | 3,798 | 143 | 953 | 2,577 | 464 | 1,438 | 6,375 | 607 | 2,391 |
| 1999 | 3,593 | 142 | 902 | 2,516 | 464 | 1,438 | 6,110 | 606 | 2,340 |
| 2000 | 3,406 | 131 | 855 | 2,455 | 464 | 1,438 | 5,862 | 595 | 2,293 |
| 2001 | 3,225 | 130 | 810 | 2,394 | 464 | 1,413 | 5,620 | 594 | 2,223 |
| 2002 | 3,060 | 110 | 767 | 2,343 | 464 | 1,413 | 5,402 | 574 | 2,180 |
| 2003 | 2,890 | 91 | 724 | 2,291 | 464 | 1,413 | 5,180 | 555 | 2,137 |
| 2004 | 2,716 | 90 | 681 | 2,239 | 464 | 1,413 | 4,955 | 554 | 2,094 |
| 2005 | 2,558 | 89 | 642 | 2,187 | 464 | 1,413 | 4,745 | 553 | 2,055 |
| | | 10,069 | | | 10,780 | | | 20,849 | |

# TABLE III-A

## SASKATCHEWAN
## RESERVES AND PRODUCIBILITY FORECAST

### *** SOUTH SASKATCHEWAN PIPELINE COMPANY ***

| Year | ESTABLISHED RESERVES | | RESERVES ADDITIONS (From Table III-B) | | | TOTAL RESERVES | |
|---|---|---|---|---|---|---|---|
| | Remaining Recoverable Reserves @ Jan. 1 | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Reserves Added | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Producibility |
| | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 16,292 | 4,570 | 0 | 500 | 22 | 16,292 | 4,592 |
| 1984 | 14,624 | 4,102 | 492 | 777 | 115 | 15,116 | 4,217 |
| 1985 | 13,127 | 3,698 | 1,227 | 599 | 248 | 14,354 | 3,946 |
| 1986 | 11,777 | 3,327 | 1,735 | 1,244 | 464 | 13,512 | 3,791 |
| 1987 | 10,563 | 2,987 | 2,810 | 755 | 668 | 13,373 | 3,655 |
| 1988 | 9,472 | 2,663 | 3,321 | 963 | 950 | 12,794 | 3,613 |
| 1989 | 8,500 | 2,400 | 3,938 | 937 | 1,175 | 12,438 | 3,575 |
| 1990 | 7,624 | 2,158 | 4,446 | 890 | 1,428 | 12,070 | 3,586 |
| 1991 | 6,837 | 1,959 | 4,814 | 803 | 1,610 | 11,651 | 3,569 |
| 1992 | 6,122 | 1,674 | 5,030 | 748 | 1,771 | 11,151 | 3,445 |
| 1993 | 5,511 | 1,488 | 5,131 | 684 | 1,893 | 10,642 | 3,381 |
| 1994 | 4,968 | 1,335 | 5,124 | 651 | 1,981 | 10,092 | 3,316 |
| 1995 | 4,480 | 1,207 | 5,052 | 620 | 2,040 | 9,533 | 3,247 |
| 1996 | 4,040 | 1,075 | 4,928 | 618 | 2,052 | 8,967 | 3,127 |
| 1997 | 3,647 | 954 | 4,797 | 617 | 2,055 | 8,444 | 3,009 |
| 1998 | 3,299 | 745 | 4,664 | 616 | 2,026 | 7,963 | 2,771 |
| 1999 | 3,027 | 639 | 4,540 | 605 | 1,998 | 7,567 | 2,637 |
| 2000 | 2,794 | 542 | 4,416 | 604 | 1,970 | 7,210 | 2,512 |
| 2001 | 2,596 | 455 | 4,301 | 612 | 1,945 | 6,897 | 2,400 |
| 2002 | 2,430 | 377 | 4,203 | 611 | 1,923 | 6,633 | 2,300 |
| 2003 | 2,292 | 341 | 4,112 | 572 | 1,900 | 6,405 | 2,241 |
| 2004 | 2,168 | 313 | 3,991 | 572 | 1,875 | 6,159 | 2,188 |
| 2005 | 2,054 | 272 | 3,878 | 571 | 1,852 | 5,932 | 2,124 |
| | | | | 16,169 | | | |

# TABLE III-B

## SASKATCHEWAN
## FORECAST OF RESERVES ADDITIONS AND PRODUCIBILITY

### *** SOUTH SASKATCHEWAN PIPELINE COMPANY ***

| Year | APPRECIATION AND NEW DISCOVERIES | | | ENHANCED OIL RECOVERY | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility |
| | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 0 | 500 | 22 | 0 | 0 | 0 | 0 | 500 | 22 |
| 1984 | 492 | 777 | 115 | 0 | 0 | 0 | 492 | 777 | 115 |
| 1985 | 1,227 | 599 | 248 | 0 | 0 | 0 | 1,227 | 599 | 248 |
| 1986 | 1,735 | 550 | 358 | 0 | 694 | 106 | 1,735 | 1,244 | 464 |
| 1987 | 2,155 | 511 | 460 | 655 | 244 | 208 | 2,810 | 755 | 668 |
| 1988 | 2,498 | 474 | 552 | 823 | 489 | 398 | 3,321 | 963 | 950 |
| 1989 | 2,770 | 448 | 632 | 1,167 | 489 | 543 | 3,938 | 937 | 1,175 |
| 1990 | 2,988 | 401 | 695 | 1,458 | 489 | 733 | 4,446 | 890 | 1,428 |
| 1991 | 3,135 | 314 | 735 | 1,679 | 489 | 875 | 4,814 | 803 | 1,610 |
| 1992 | 3,181 | 259 | 754 | 1,849 | 489 | 1,017 | 5,030 | 748 | 1,771 |
| 1993 | 3,165 | 195 | 755 | 1,967 | 489 | 1,138 | 5,131 | 684 | 1,893 |
| 1994 | 3,084 | 162 | 742 | 2,040 | 489 | 1,239 | 5,124 | 651 | 1,981 |
| 1995 | 2,975 | 131 | 719 | 2,077 | 489 | 1,321 | 5,052 | 620 | 2,040 |
| 1996 | 2,844 | 129 | 691 | 2,084 | 489 | 1,361 | 4,928 | 618 | 2,052 |
| 1997 | 2,721 | 128 | 661 | 2,076 | 489 | 1,394 | 4,797 | 617 | 2,055 |
| 1998 | 2,607 | 127 | 632 | 2,056 | 489 | 1,394 | 4,664 | 616 | 2,026 |
| 1999 | 2,504 | 116 | 604 | 2,037 | 489 | 1,394 | 4,540 | 605 | 1,998 |
| 2000 | 2,399 | 115 | 576 | 2,017 | 489 | 1,394 | 4,416 | 604 | 1,970 |
| 2001 | 2,304 | 123 | 551 | 1,997 | 489 | 1,394 | 4,301 | 612 | 1,945 |
| 2002 | 2,226 | 122 | 529 | 1,977 | 489 | 1,394 | 4,203 | 611 | 1,923 |
| 2003 | 2,155 | 83 | 506 | 1,957 | 489 | 1,394 | 4,112 | 572 | 1,900 |
| 2004 | 2,053 | 83 | 481 | 1,938 | 489 | 1,394 | 3,991 | 572 | 1,875 |
| 2005 | 1,960 | 82 | 458 | 1,918 | 489 | 1,394 | 3,878 | 571 | 1,852 |
| | | 6,429 | | | 9,740 | | | 16,169 | |

# TABLE IV-A

## SASKATCHEWAN
## RESERVES AND PRODUCIBILITY FORECAST

### *** WESTSPUR PIPELINE COMPANY - S.E. SASKATCHEWAN MEDIUM ***

| Year | ESTABLISHED RESERVES | | RESERVES ADDITIONS (From Table IV-B) | | | TOTAL RESERVES | |
|---|---|---|---|---|---|---|---|
| | Remaining Recoverable Reserves @ Jan. 1 | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Reserves Added | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Producibility |
| | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 24,990 | 4,762 | 0 | 2,511 | 216 | 24,990 | 4,978 |
| 1984 | 23,252 | 4,427 | 2,432 | 2,633 | 678 | 25,684 | 5,105 |
| 1985 | 21,636 | 4,131 | 4,818 | 2,357 | 1,099 | 26,454 | 5,230 |
| 1986 | 20,128 | 3,866 | 6,774 | 1,919 | 1,425 | 26,902 | 5,291 |
| 1987 | 18,717 | 3,584 | 8,172 | 2,185 | 1,755 | 26,890 | 5,339 |
| 1988 | 17,409 | 3,354 | 9,717 | 1,473 | 1,983 | 27,126 | 5,337 |
| 1989 | 16,185 | 3,123 | 10,466 | 1,701 | 2,220 | 26,651 | 5,343 |
| 1990 | 15,045 | 2,923 | 11,357 | 1,770 | 2,446 | 26,402 | 5,369 |
| 1991 | 13,978 | 2,737 | 12,234 | 2,171 | 2,755 | 26,212 | 5,492 |
| 1992 | 12,979 | 2,577 | 13,399 | 1,821 | 3,105 | 26,378 | 5,682 |
| 1993 | 12,038 | 2,340 | 14,087 | 1,739 | 3,504 | 26,125 | 5,844 |
| 1994 | 11,184 | 2,197 | 14,547 | 1,657 | 3,827 | 25,731 | 6,024 |
| 1995 | 10,382 | 2,056 | 14,807 | 1,577 | 4,103 | 25,190 | 6,159 |
| 1996 | 9,632 | 1,925 | 14,887 | 1,487 | 4,377 | 24,519 | 6,302 |
| 1997 | 8,929 | 1,802 | 14,776 | 1,434 | 4,524 | 23,705 | 6,326 |
| 1998 | 8,272 | 1,690 | 14,559 | 1,323 | 4,596 | 22,830 | 6,286 |
| 1999 | 7,655 | 1,535 | 14,204 | 1,261 | 4,612 | 21,859 | 6,147 |
| 2000 | 7,094 | 1,429 | 13,782 | 1,200 | 4,575 | 20,876 | 6,004 |
| 2001 | 6,573 | 1,330 | 13,312 | 1,129 | 4,511 | 19,885 | 5,841 |
| 2002 | 6,087 | 1,238 | 12,794 | 1,082 | 4,335 | 18,882 | 5,573 |
| 2003 | 5,636 | 1,170 | 12,294 | 1,070 | 4,245 | 17,930 | 5,415 |
| 2004 | 5,208 | 1,098 | 11,815 | 1,069 | 4,159 | 17,023 | 5,257 |
| 2005 | 4,808 | 1,017 | 11,366 | 1,068 | 4,080 | 16,173 | 5,097 |
| | | | | 37,637 | | | |

# TABLE IV-B

## SASKATCHEWAN
## FORECAST OF RESERVES ADDITIONS AND PRODUCIBILITY

### *** WESTSPUR PIPE LINE COMPANY - S.E. SASKATCHEWAN MEDIUM ***

| Year | APPRECIATION AND NEW DISCOVERIES | | | ENHANCED OIL RECOVERY | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility |
| | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 0 | 2,511 | 216 | | | | | | |
| 1984 | 2,432 | 2,633 | 678 | 0 | 0 | 0 | 0 | 2,511 | 216 |
| 1985 | 4,818 | 2,295 | 1,092 | 0 | 0 | 0 | 2,432 | 2,633 | 678 |
| | | | | 0 | 62 | 7 | 4,818 | 2,357 | 1,099 |
| 1986 | 6,714 | 1,857 | 1,406 | | | | | | |
| 1987 | 8,058 | 1,561 | 1,630 | 59 | 62 | 19 | 6,774 | 1,919 | 1,425 |
| 1988 | 9,024 | 1,349 | 1,791 | 115 | 624 | 125 | 8,172 | 2,185 | 1,755 |
| 1989 | 9,719 | 1,206 | 1,908 | 693 | 124 | 192 | 9,717 | 1,473 | 1,983 |
| 1990 | 10,229 | 1,027 | 1,987 | 747 | 495 | 312 | 10,466 | 1,701 | 2,220 |
| | | | | 1,128 | 743 | 459 | 11,357 | 1,770 | 2,446 |
| 1991 | 10,531 | 928 | 2,035 | | | | | | |
| 1992 | 10,716 | 830 | 2,061 | 1,703 | 1,243 | 720 | 12,234 | 2,171 | 2,755 |
| 1993 | 10,794 | 748 | 2,068 | 2,684 | 991 | 1,044 | 13,399 | 1,821 | 3,105 |
| 1994 | 10,787 | 666 | 2,060 | 3,294 | 991 | 1,436 | 14,087 | 1,739 | 3,504 |
| 1995 | 10,701 | 586 | 2,037 | 3,760 | 991 | 1,767 | 14,547 | 1,657 | 3,827 |
| | | | | 4,106 | 991 | 2,066 | 14,807 | 1,577 | 4,103 |
| 1996 | 10,543 | 496 | 2,000 | | | | | | |
| 1997 | 10,309 | 443 | 1,952 | 4,343 | 991 | 2,377 | 14,887 | 1,487 | 4,377 |
| 1998 | 10,040 | 332 | 1,892 | 4,467 | 991 | 2,572 | 14,776 | 1,434 | 4,524 |
| 1999 | 9,681 | 270 | 1,820 | 4,519 | 991 | 2,704 | 14,559 | 1,323 | 4,596 |
| 2000 | 9,287 | 209 | 1,742 | 4,523 | 991 | 2,792 | 14,204 | 1,261 | 4,612 |
| | | | | 4,495 | 991 | 2,833 | 13,782 | 1,200 | 4,575 |
| 2001 | 8,860 | 138 | 1,657 | | | | | | |
| 2002 | 8,393 | 91 | 1,566 | 4,452 | 991 | 2,854 | 13,312 | 1,129 | 4,511 |
| 2003 | 7,913 | 79 | 1,476 | 4,401 | 991 | 2,769 | 12,794 | 1,082 | 4,335 |
| 2004 | 7,453 | 78 | 1,390 | 4,381 | 991 | 2,769 | 12,294 | 1,070 | 4,245 |
| 2005 | 7,024 | 77 | 1,311 | 4,362 | 991 | 2,769 | 11,815 | 1,069 | 4,159 |
| | | | | 4,342 | 991 | 2,769 | 11,366 | 1,068 | 4,080 |
| | | 20,410 | | | 17,227 | | | 37,637 | |

# TABLE V-A

## SASKATCHEWAN
## RESERVES AND PRODUCIBILITY FORECAST

### *** DOW RIVER PIPELINES LTD.(LIGHT) ***

| Year | ESTABLISHED RESERVES | | RESERVES ADDITIONS (From Table V-B) | | | TOTAL RESERVES | |
|---|---|---|---|---|---|---|---|
| | Remaining Recoverable Reserves @ Jan. 1 | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Reserves Added | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Producibility |
| | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 5,757 | 1,368 | 0 | 3,131 | 483 | 5,757 | 1,851 |
| 1984 | 5,258 | 1,266 | 2,955 | 2,637 | 1,325 | 8,212 | 2,591 |
| 1985 | 4,796 | 1,175 | 5,108 | 2,040 | 1,832 | 9,904 | 3,007 |
| 1986 | 4,367 | 1,091 | 6,479 | 2,035 | 2,159 | 10,846 | 3,250 |
| 1987 | 3,968 | 1,013 | 7,726 | 905 | 2,134 | 11,695 | 3,147 |
| 1988 | 3,599 | 910 | 7,852 | 1,213 | 2,161 | 11,451 | 3,071 |
| 1989 | 3,267 | 840 | 8,277 | 637 | 2,079 | 11,543 | 2,919 |
| 1990 | 2,960 | 782 | 8,155 | 558 | 1,990 | 11,115 | 2,772 |
| 1991 | 2,675 | 729 | 7,987 | 398 | 1,876 | 10,661 | 2,605 |
| 1992 | 2,408 | 666 | 7,700 | 333 | 1,794 | 10,108 | 2,460 |
| 1993 | 2,165 | 619 | 7,378 | 287 | 1,676 | 9,543 | 2,295 |
| 1994 | 1,939 | 577 | 7,053 | 270 | 1,605 | 8,993 | 2,182 |
| 1995 | 1,729 | 540 | 6,737 | 240 | 1,521 | 8,466 | 2,061 |
| 1996 | 1,532 | 500 | 6,422 | 174 | 1,452 | 7,954 | 1,952 |
| 1997 | 1,349 | 466 | 6,066 | 127 | 1,377 | 7,416 | 1,843 |
| 1998 | 1,179 | 431 | 5,691 | 125 | 1,284 | 6,870 | 1,715 |
| 1999 | 1,022 | 404 | 5,347 | 120 | 1,221 | 6,369 | 1,625 |
| 2000 | 874 | 376 | 5,021 | 119 | 1,144 | 5,896 | 1,520 |
| 2001 | 737 | 351 | 4,723 | 113 | 1,093 | 5,460 | 1,444 |
| 2002 | 609 | 328 | 4,437 | 77 | 1,021 | 5,046 | 1,349 |
| 2003 | 489 | 308 | 4,141 | 81 | 969 | 4,630 | 1,277 |
| 2004 | 377 | 273 | 3,868 | 80 | 907 | 4,245 | 1,180 |
| 2005 | 277 | 256 | 3,617 | 79 | 865 | 3,895 | 1,121 |
| | | | | 15,779 | | | |

# TABLE V-B

## SASKATCHEWAN
## FORECAST OF RESERVES ADDITIONS AND PRODUCIBILITY

### *** BOW RIVER PIPELINES LTD.(LIGHT) ***

| Year | APPRECIATION AND NEW DISCOVERIES | | | ENHANCED OIL RECOVERY | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility |
| | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 0 | 3,131 | 483 | 0 | 0 | 0 | 0 | 3,131 | 483 |
| 1984 | 2,955 | 2,637 | 1,325 | 0 | 0 | 0 | 2,955 | 2,637 | 1,325 |
| 1985 | 5,108 | 2,040 | 1,832 | 0 | 0 | 0 | 5,108 | 2,040 | 1,832 |
| 1986 | 6,479 | 1,035 | 1,994 | 0 | 1,000 | 165 | 6,479 | 2,035 | 2,159 |
| 1987 | 6,787 | 905 | 1,944 | 940 | 0 | 190 | 7,726 | 905 | 2,134 |
| 1988 | 6,982 | 713 | 1,861 | 870 | 500 | 300 | 7,852 | 1,213 | 2,161 |
| 1989 | 7,016 | 637 | 1,764 | 1,261 | 0 | 315 | 8,277 | 637 | 2,079 |
| 1990 | 7,009 | 558 | 1,690 | 1,146 | 0 | 300 | 8,155 | 558 | 1,990 |
| 1991 | 6,950 | 398 | 1,616 | 1,036 | 0 | 260 | 7,987 | 398 | 1,876 |
| 1992 | 6,758 | 333 | 1,534 | 942 | 0 | 260 | 7,700 | 333 | 1,794 |
| 1993 | 6,531 | 287 | 1,456 | 847 | 0 | 220 | 7,378 | 287 | 1,676 |
| 1994 | 6,287 | 270 | 1,385 | 766 | 0 | 220 | 7,053 | 270 | 1,605 |
| 1995 | 6,051 | 240 | 1,321 | 686 | 0 | 200 | 6,737 | 240 | 1,521 |
| 1996 | 5,809 | 174 | 1,252 | 613 | 0 | 200 | 6,422 | 174 | 1,452 |
| 1997 | 5,526 | 127 | 1,177 | 540 | 0 | 200 | 6,066 | 127 | 1,377 |
| 1998 | 5,224 | 125 | 1,104 | 467 | 0 | 180 | 5,691 | 125 | 1,284 |
| 1999 | 4,946 | 120 | 1,041 | 401 | 0 | 180 | 5,347 | 120 | 1,221 |
| 2000 | 4,686 | 119 | 984 | 336 | 0 | 160 | 5,021 | 119 | 1,144 |
| 2001 | 4,446 | 113 | 933 | 277 | 0 | 160 | 4,723 | 113 | 1,093 |
| 2002 | 4,218 | 77 | 881 | 219 | 0 | 140 | 4,437 | 77 | 1,021 |
| 2003 | 3,973 | 81 | 829 | 168 | 0 | 140 | 4,141 | 81 | 969 |
| 2004 | 3,752 | 80 | 782 | 117 | 0 | 125 | 3,868 | 80 | 907 |
| 2005 | 3,546 | 79 | 740 | 71 | 0 | 125 | 3,617 | 79 | 865 |
| | | 14,279 | | | 1,500 | | | 15,779 | |

# TABLE VI-A

## SASKATCHEWAN
## RESERVES AND PRODUCIBILITY FORECAST

### *** WESTSPUR PIPELINE COMPANY - S.E. SASKATCHEWAN LIGHT ***

| Year | ESTABLISHED RESERVES | | RESERVES ADDITIONS (From Table VI-B) | | | TOTAL RESERVES | |
|---|---|---|---|---|---|---|---|
| | Remaining Recoverable Reserves @ Jan. 1 | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Reserves Added | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Producibility |
| | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 21,226 | 5,549 | | | | | |
| 1984 | 19,201 | 5,073 | 0 | 1,990 | 227 | 21,226 | 5,776 |
| 1985 | 17,349 | 4,714 | 1,907 | 2,087 | 703 | 21,108 | 5,776 |
| | | | 3,738 | 2,119 | 1,140 | 21,087 | 5,854 |
| 1986 | 15,628 | 4,216 | | | | | |
| 1987 | 14,090 | 3,858 | 5,440 | 1,869 | 1,503 | 21,069 | 5,719 |
| 1988 | 12,681 | 3,524 | 6,761 | 1,458 | 1,787 | 20,850 | 5,645 |
| 1989 | 11,395 | 3,214 | 7,567 | 1,304 | 2,045 | 20,248 | 5,569 |
| 1990 | 10,222 | 2,941 | 8,124 | 1,080 | 2,183 | 19,519 | 5,397 |
| | | | 8,407 | 1,370 | 2,351 | 18,629 | 5,292 |
| 1991 | 9,149 | 2,676 | | | | | |
| 1992 | 8,172 | 2,428 | 8,919 | 1,569 | 2,514 | 18,068 | 5,190 |
| 1993 | 7,286 | 2,231 | 9,571 | 1,541 | 2,718 | 17,742 | 5,146 |
| 1994 | 6,471 | 2,050 | 10,120 | 1,751 | 3,006 | 17,405 | 5,237 |
| 1995 | 5,723 | 1,832 | 10,773 | 1,655 | 3,334 | 17,245 | 5,384 |
| | | | 11,211 | 1,630 | 3,666 | 16,934 | 5,498 |
| 1996 | 5,054 | 1,628 | | | | | |
| 1997 | 4,460 | 1,490 | 11,503 | 1,547 | 3,956 | 16,558 | 5,584 |
| 1998 | 3,916 | 1,329 | 11,606 | 1,503 | 4,193 | 16,067 | 5,683 |
| 1999 | 3,431 | 1,181 | 11,579 | 1,470 | 4,340 | 15,495 | 5,669 |
| 2000 | 3,000 | 1,048 | 11,465 | 1,419 | 4,427 | 14,896 | 5,608 |
| | | | 11,268 | 1,359 | 4,432 | 14,268 | 5,480 |
| 2001 | 2,618 | 945 | | | | | |
| 2002 | 2,273 | 881 | 11,009 | 1,310 | 4,382 | 13,627 | 5,327 |
| 2003 | 1,951 | 756 | 10,720 | 1,226 | 4,323 | 12,993 | 5,204 |
| 2004 | 1,675 | 691 | 10,368 | 1,170 | 4,232 | 12,319 | 4,988 |
| 2005 | 1,423 | 619 | 9,993 | 1,132 | 4,138 | 11,669 | 4,829 |
| | | | 9,615 | 1,114 | 4,045 | 11,038 | 4,664 |
| | | | | 34,673 | | | |

# TABLE VI-B

## SASKATCHEWAN
## FORECAST OF RESERVES ADDITIONS AND PRODUCIBILITY

### *** WESTSPUR PIPE LINE COMPANY - S.E. SASKATCHEWAN LIGHT ***

| Year | APPRECIATION AND NEW DISCOVERIES | | | ENHANCED OIL RECOVERY | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility |
| | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 0 | 1,990 | 227 | 0 | 0 | 0 | 0 | 1,990 | 227 |
| 1984 | 1,907 | 2,087 | 703 | 0 | 0 | 0 | 1,907 | 2,087 | 703 |
| 1985 | 3,738 | 1,819 | 1,120 | 0 | 300 | 20 | 3,738 | 2,119 | 1,140 |
| 1986 | 5,148 | 1,567 | 1,436 | 293 | 302 | 67 | 5,440 | 1,869 | 1,503 |
| 1987 | 6,191 | 1,196 | 1,648 | 570 | 262 | 139 | 6,761 | 1,458 | 1,787 |
| 1988 | 6,785 | 1,080 | 1,780 | 782 | 224 | 265 | 7,567 | 1,304 | 2,045 |
| 1989 | 7,215 | 956 | 1,871 | 909 | 124 | 312 | 8,124 | 1,080 | 2,183 |
| 1990 | 7,488 | 875 | 1,929 | 919 | 495 | 422 | 8,407 | 1,370 | 2,351 |
| 1991 | 7,659 | 826 | 1,965 | 1,260 | 743 | 549 | 8,919 | 1,569 | 2,514 |
| 1992 | 7,768 | 798 | 1,988 | 1,802 | 743 | 730 | 9,571 | 1,541 | 2,718 |
| 1993 | 7,841 | 760 | 2,002 | 2,279 | 991 | 1,004 | 10,120 | 1,751 | 3,006 |
| 1994 | 7,870 | 664 | 1,998 | 2,904 | 991 | 1,336 | 10,773 | 1,655 | 3,334 |
| 1995 | 7,805 | 639 | 1,979 | 3,407 | 991 | 1,687 | 11,211 | 1,630 | 3,666 |
| 1996 | 7,721 | 556 | 1,950 | 3,782 | 991 | 2,006 | 11,503 | 1,547 | 3,956 |
| 1997 | 7,565 | 512 | 1,906 | 4,041 | 991 | 2,287 | 11,606 | 1,503 | 4,193 |
| 1998 | 7,382 | 479 | 1,858 | 4,197 | 991 | 2,482 | 11,579 | 1,470 | 4,340 |
| 1999 | 7,183 | 428 | 1,803 | 4,282 | 991 | 2,624 | 11,465 | 1,419 | 4,427 |
| 2000 | 6,953 | 368 | 1,740 | 4,316 | 991 | 2,692 | 11,268 | 1,359 | 4,432 |
| 2001 | 6,685 | 319 | 1,669 | 4,324 | 991 | 2,713 | 11,009 | 1,310 | 4,382 |
| 2002 | 6,395 | 235 | 1,589 | 4,325 | 991 | 2,734 | 10,720 | 1,226 | 4,323 |
| 2003 | 6,050 | 179 | 1,498 | 4,318 | 991 | 2,734 | 10,368 | 1,170 | 4,232 |
| 2004 | 5,682 | 141 | 1,404 | 4,311 | 991 | 2,734 | 9,993 | 1,132 | 4,138 |
| 2005 | 5,311 | 123 | 1,311 | 4,304 | 991 | 2,734 | 9,615 | 1,114 | 4,045 |
| | | 18,597 | | | 16,076 | | | 34,673 | |

# TABLE VII-A

## SASKATCHEWAN
## RESERVES AND PRODUCIBILITY FORECAST

### *** PROVINCIAL TOTAL - HEAVY AND MEDIUM ***

| Year | ESTABLISHED RESERVES | | RESERVES ADDITIONS (From Table VII-B) | | | TOTAL RESERVES | |
|---|---|---|---|---|---|---|---|
| | Remaining Recoverable Reserves @ Jan. 1 | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Reserves Added | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Producibility |
| | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 71,280 | 17,613 | 0 | 6,690 | 763 | 71,280 | 18,376 |
| 1984 | 64,851 | 16,320 | 6,412 | 7,520 | 2,316 | 71,263 | 18,636 |
| 1985 | 58,894 | 14,724 | 13,086 | 8,756 | 4,194 | 71,981 | 18,918 |
| 1986 | 53,520 | 13,499 | 20,311 | 9,063 | 6,226 | 73,832 | 19,725 |
| 1987 | 48,593 | 12,062 | 27,102 | 7,516 | 7,978 | 75,695 | 20,040 |
| 1988 | 44,190 | 10,948 | 31,706 | 7,094 | 9,568 | 75,896 | 20,516 |
| 1989 | 40,194 | 9,955 | 35,308 | 6,914 | 10,936 | 75,502 | 20,891 |
| 1990 | 36,561 | 9,073 | 38,230 | 6,714 | 12,152 | 74,791 | 21,225 |
| 1991 | 33,249 | 8,295 | 40,508 | 6,736 | 13,233 | 73,758 | 21,528 |
| 1992 | 30,222 | 7,447 | 42,414 | 6,082 | 14,209 | 72,636 | 21,656 |
| 1993 | 27,503 | 6,711 | 43,310 | 5,680 | 15,012 | 70,813 | 21,723 |
| 1994 | 25,054 | 6,114 | 43,511 | 5,878 | 15,719 | 68,565 | 21,833 |
| 1995 | 22,822 | 5,455 | 43,651 | 5,665 | 16,212 | 66,474 | 21,667 |
| 1996 | 20,831 | 4,953 | 43,399 | 5,439 | 16,602 | 64,230 | 21,555 |
| 1997 | 19,023 | 4,361 | 42,778 | 5,309 | 16,755 | 61,802 | 21,116 |
| 1998 | 17,432 | 3,644 | 41,972 | 5,147 | 16,810 | 59,403 | 20,454 |
| 1999 | 16,101 | 3,229 | 40,983 | 4,980 | 16,766 | 57,084 | 19,995 |
| 2000 | 14,923 | 2,872 | 39,843 | 5,300 | 16,715 | 54,766 | 19,587 |
| 2001 | 13,875 | 2,495 | 39,042 | 5,242 | 16,625 | 52,917 | 19,120 |
| 2002 | 12,964 | 2,240 | 38,216 | 5,145 | 16,455 | 51,180 | 18,695 |
| 2003 | 12,146 | 1,990 | 37,355 | 5,075 | 16,381 | 49,502 | 18,371 |
| 2004 | 11,420 | 1,762 | 36,451 | 5,058 | 16,309 | 47,871 | 18,071 |
| 2005 | 10,777 | 1,609 | 35,556 | 5,054 | 16,236 | 46,333 | 17,845 |
| | | | | 142,057 | | | |

# TABLE VII-B

## SASKATCHEWAN
## FORECAST OF RESERVES ADDITIONS AND PRODUCIBILITY

### *** PROVINCIAL TOTAL - HEAVY AND MEDIUM ***

| Year | APPRECIATION AND NEW DISCOVERIES | | | ENHANCED OIL RECOVERY | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility |
| | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 0 | 5,762 | 560 | 0 | 928 | 203 | 0 | 6,690 | 763 |
| 1984 | 5,558 | 6,592 | 1,859 | 854 | 928 | 457 | 6,412 | 7,520 | 2,316 |
| 1985 | 11,471 | 6,570 | 3,242 | 1,615 | 2,186 | 952 | 13,086 | 8,756 | 4,194 |
| 1986 | 16,858 | 5,683 | 4,465 | 3,454 | 3,380 | 1,761 | 20,311 | 9,063 | 6,226 |
| 1987 | 20,911 | 4,792 | 5,393 | 6,191 | 2,724 | 2,585 | 27,102 | 7,516 | 7,978 |
| 1988 | 23,735 | 4,161 | 6,052 | 7,971 | 2,933 | 3,516 | 31,706 | 7,094 | 9,568 |
| 1989 | 25,687 | 3,610 | 6,499 | 9,621 | 3,304 | 4,437 | 35,308 | 6,914 | 10,936 |
| 1990 | 26,924 | 3,162 | 6,774 | 11,305 | 3,552 | 5,378 | 38,230 | 6,714 | 12,152 |
| 1991 | 27,614 | 2,684 | 6,909 | 12,895 | 4,052 | 6,324 | 40,508 | 6,736 | 13,233 |
| 1992 | 27,776 | 2,282 | 6,917 | 14,638 | 3,800 | 7,292 | 42,414 | 6,082 | 14,209 |
| 1993 | 27,533 | 1,880 | 6,819 | 15,777 | 3,800 | 8,193 | 43,310 | 5,680 | 15,012 |
| 1994 | 26,925 | 1,614 | 6,641 | 16,586 | 4,264 | 9,078 | 43,511 | 5,878 | 15,719 |
| 1995 | 26,115 | 1,401 | 6,410 | 17,537 | 4,264 | 9,802 | 43,651 | 5,665 | 16,212 |
| 1996 | 25,176 | 1,175 | 6,144 | 18,223 | 4,264 | 10,458 | 43,399 | 5,439 | 16,602 |
| 1997 | 24,108 | 1,045 | 5,852 | 18,670 | 4,264 | 10,903 | 42,778 | 5,309 | 16,755 |
| 1998 | 23,017 | 883 | 5,553 | 18,954 | 4,264 | 11,257 | 41,972 | 5,147 | 16,810 |
| 1999 | 21,874 | 716 | 5,242 | 19,109 | 4,264 | 11,524 | 40,983 | 4,980 | 16,766 |
| 2000 | 20,676 | 572 | 4,922 | 19,167 | 4,728 | 11,793 | 39,843 | 5,300 | 16,715 |
| 2001 | 19,452 | 514 | 4,607 | 19,591 | 4,728 | 12,018 | 39,042 | 5,242 | 16,625 |
| 2002 | 18,284 | 417 | 4,305 | 19,932 | 4,728 | 12,150 | 38,216 | 5,145 | 16,455 |
| 2003 | 17,130 | 347 | 4,015 | 20,225 | 4,728 | 12,366 | 37,355 | 5,075 | 16,381 |
| 2004 | 16,011 | 330 | 3,740 | 20,440 | 4,728 | 12,569 | 36,451 | 5,058 | 16,309 |
| 2005 | 14,976 | 326 | 3,489 | 20,580 | 4,728 | 12,747 | 35,556 | 5,054 | 16,236 |
| | | 56,518 | | | 85,539 | | | 142,057 | |

# TABLE VIII-A

## SASKATCHEWAN
## RESERVES AND PRODUCIBILITY FORECAST

### *** PROVINCIAL TOTAL - LIGHT ***

| Year | ESTABLISHED RESERVES | | RESERVES ADDITIONS (From Table VIII-B) | | | TOTAL RESERVES | |
|---|---|---|---|---|---|---|---|
| | Remaining Recoverable Reserves @ Jan. 1 | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Reserves Added | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Producibility |
| | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 26,983 | 6,917 | 0 | 5,121 | 710 | 26,983 | 7,627 |
| 1984 | 24,458 | 6,339 | 4,862 | 4,724 | 2,028 | 29,320 | 8,367 |
| 1985 | 22,145 | 5,889 | 8,846 | 4,159 | 2,972 | 30,990 | 8,861 |
| 1986 | 19,995 | 5,307 | 11,920 | 3,904 | 3,662 | 31,915 | 8,969 |
| 1987 | 18,058 | 4,871 | 14,487 | 2,363 | 3,921 | 32,545 | 8,792 |
| 1988 | 16,280 | 4,434 | 15,419 | 2,517 | 4,206 | 31,699 | 8,640 |
| 1989 | 14,662 | 4,054 | 16,401 | 1,717 | 4,262 | 31,063 | 8,316 |
| 1990 | 13,182 | 3,723 | 16,562 | 1,928 | 4,341 | 29,744 | 8,064 |
| 1991 | 11,823 | 3,405 | 16,906 | 1,967 | 4,390 | 28,729 | 7,795 |
| 1992 | 10,580 | 3,094 | 17,270 | 1,874 | 4,512 | 27,851 | 7,606 |
| 1993 | 9,451 | 2,850 | 17,498 | 2,038 | 4,682 | 26,948 | 7,532 |
| 1994 | 8,411 | 2,627 | 17,827 | 1,925 | 4,939 | 26,237 | 7,566 |
| 1995 | 7,452 | 2,372 | 17,949 | 1,870 | 5,187 | 25,401 | 7,559 |
| 1996 | 6,586 | 2,128 | 17,926 | 1,721 | 5,408 | 24,512 | 7,536 |
| 1997 | 5,809 | 1,956 | 17,673 | 1,630 | 5,570 | 23,482 | 7,526 |
| 1998 | 5,095 | 1,760 | 17,270 | 1,595 | 5,624 | 22,365 | 7,384 |
| 1999 | 4,453 | 1,585 | 16,812 | 1,539 | 5,648 | 21,265 | 7,233 |
| 2000 | 3,874 | 1,424 | 16,289 | 1,478 | 5,576 | 20,164 | 7,000 |
| 2001 | 3,355 | 1,296 | 15,732 | 1,423 | 5,475 | 19,087 | 6,771 |
| 2002 | 2,882 | 1,209 | 15,157 | 1,303 | 5,344 | 18,038 | 6,553 |
| 2003 | 2,440 | 1,064 | 14,509 | 1,251 | 5,201 | 16,950 | 6,265 |
| 2004 | 2,052 | 964 | 13,862 | 1,212 | 5,045 | 15,914 | 6,009 |
| 2005 | 1,700 | 875 | 13,232 | 1,193 | 4,910 | 14,933 | 5,785 |
| | | | | 50,452 | | | |

# TABLE VIII-B

## SASKATCHEWAN
## FORECAST OF RESERVES ADDITIONS AND PRODUCIBILITY

### *** PROVINCIAL TOTAL - LIGHT ***

| Year | APPRECIATION AND NEW DISCOVERIES | | | ENHANCED OIL RECOVERY | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility |
| | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 0 | 5,121 | 710 | 0 | 0 | 0 | 0 | 5,121 | 710 |
| 1984 | 4,862 | 4,724 | 2,028 | 0 | 0 | 0 | 4,862 | 4,724 | 2,028 |
| 1985 | 8,846 | 3,859 | 2,952 | 0 | 300 | 20 | 8,846 | 4,159 | 2,972 |
| 1986 | 11,627 | 2,602 | 3,430 | 293 | 1,302 | 232 | 11,920 | 3,904 | 3,662 |
| 1987 | 12,977 | 2,101 | 3,592 | 1,510 | 262 | 329 | 14,487 | 2,363 | 3,921 |
| 1988 | 13,767 | 1,793 | 3,641 | 1,652 | 724 | 565 | 15,419 | 2,517 | 4,206 |
| 1989 | 14,231 | 1,593 | 3,635 | 2,170 | 124 | 627 | 16,401 | 1,717 | 4,262 |
| 1990 | 14,497 | 1,433 | 3,619 | 2,065 | 495 | 722 | 16,562 | 1,928 | 4,341 |
| 1991 | 14,609 | 1,224 | 3,581 | 2,296 | 743 | 809 | 16,906 | 1,967 | 4,390 |
| 1992 | 14,526 | 1,131 | 3,522 | 2,744 | 743 | 990 | 17,270 | 1,874 | 4,512 |
| 1993 | 14,372 | 1,047 | 3,458 | 3,126 | 991 | 1,224 | 17,498 | 2,038 | 4,682 |
| 1994 | 14,157 | 934 | 3,383 | 3,670 | 991 | 1,556 | 17,827 | 1,925 | 4,939 |
| 1995 | 13,856 | 879 | 3,300 | 4,093 | 991 | 1,887 | 17,949 | 1,870 | 5,187 |
| 1996 | 13,530 | 730 | 3,202 | 4,395 | 991 | 2,206 | 17,926 | 1,721 | 5,408 |
| 1997 | 13,092 | 639 | 3,083 | 4,581 | 991 | 2,487 | 17,673 | 1,630 | 5,570 |
| 1998 | 12,605 | 604 | 2,962 | 4,664 | 991 | 2,662 | 17,270 | 1,595 | 5,624 |
| 1999 | 12,128 | 548 | 2,844 | 4,684 | 991 | 2,804 | 16,812 | 1,539 | 5,648 |
| 2000 | 11,638 | 487 | 2,724 | 4,651 | 991 | 2,852 | 16,289 | 1,478 | 5,576 |
| 2001 | 11,131 | 432 | 2,602 | 4,601 | 991 | 2,873 | 15,732 | 1,423 | 5,475 |
| 2002 | 10,613 | 312 | 2,470 | 4,544 | 991 | 2,874 | 15,157 | 1,303 | 5,344 |
| 2003 | 10,024 | 260 | 2,327 | 4,486 | 991 | 2,874 | 14,509 | 1,251 | 5,201 |
| 2004 | 9,434 | 221 | 2,186 | 4,428 | 991 | 2,859 | 13,862 | 1,212 | 5,045 |
| 2005 | 8,857 | 202 | 2,051 | 4,375 | 991 | 2,859 | 13,232 | 1,193 | 4,910 |
| | | 32,876 | | | 17,576 | | | 50,452 | |

# TABLE IX-A

## SASKATCHEWAN
## RESERVES AND PRODUCIBILITY FORECAST

### *** PROVINCIAL TOTAL ***

| Year | ESTABLISHED RESERVES | | RESERVES ADDITIONS (From Table IX-B) | | TOTAL RESERVES | |
|---|---|---|---|---|---|---|
| | Remaining Recoverable Reserves @ Jan. 1 | Producibility | Remaining Recoverable Reserves @ Jan. 1 | Reserves Added / Producibility | Remaining Recoverable Reserves @ Jan. 1 | Producibility |
| | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES / CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 98,263 | 24,530 | 0 | 11,811 / 1,473 | 98,263 | 26,003 |
| 1984 | 89,310 | 22,659 | 11,273 | 12,244 / 4,344 | 100,583 | 27,003 |
| 1985 | 81,039 | 20,613 | 21,932 | 12,915 / 7,166 | 102,971 | 27,779 |
| 1986 | 73,515 | 18,806 | 32,231 | 12,967 / 9,888 | 105,746 | 28,694 |
| 1987 | 66,651 | 16,933 | 41,589 | 9,879 / 11,899 | 108,240 | 28,832 |
| 1988 | 60,471 | 15,382 | 47,125 | 9,611 / 13,774 | 107,595 | 29,156 |
| 1989 | 54,856 | 14,009 | 51,708 | 8,631 / 15,198 | 106,565 | 29,207 |
| 1990 | 49,743 | 12,796 | 54,792 | 8,642 / 16,493 | 104,535 | 29,289 |
| 1991 | 45,072 | 11,700 | 57,414 | 8,703 / 17,623 | 102,487 | 29,323 |
| 1992 | 40,802 | 10,541 | 59,685 | 7,956 / 18,721 | 100,487 | 29,262 |
| 1993 | 36,954 | 9,561 | 60,808 | 7,718 / 19,694 | 97,762 | 29,255 |
| 1994 | 33,465 | 8,741 | 61,337 | 7,803 / 20,658 | 94,802 | 29,399 |
| 1995 | 30,274 | 7,827 | 61,600 | 7,535 / 21,399 | 91,874 | 29,226 |
| 1996 | 27,417 | 7,081 | 61,325 | 7,160 / 22,010 | 88,742 | 29,091 |
| 1997 | 24,833 | 6,317 | 60,451 | 6,939 / 22,325 | 85,284 | 28,642 |
| 1998 | 22,527 | 5,404 | 59,241 | 6,742 / 22,434 | 81,768 | 27,838 |
| 1999 | 20,554 | 4,814 | 57,795 | 6,519 / 22,414 | 78,349 | 27,228 |
| 2000 | 18,797 | 4,296 | 56,133 | 6,778 / 22,291 | 74,930 | 26,587 |
| 2001 | 17,229 | 3,791 | 54,775 | 6,665 / 22,100 | 72,004 | 25,891 |
| 2002 | 15,846 | 3,449 | 53,373 | 6,448 / 21,799 | 69,219 | 25,248 |
| 2003 | 14,587 | 3,054 | 51,864 | 6,326 / 21,582 | 66,451 | 24,636 |
| 2004 | 13,472 | 2,726 | 50,313 | 6,270 / 21,354 | 63,785 | 24,080 |
| 2005 | 12,477 | 2,484 | 48,789 | 6,247 / 21,146 | 61,266 | 23,630 |
| | | | | 192,509 | | |

# TABLE IX-B

## SASKATCHEWAN
## FORECAST OF RESERVES ADDITIONS AND PRODUCIBILITY

*** PROVINCIAL TOTAL ***

| Year | APPRECIATION AND NEW DISCOVERIES | | | ENHANCED OIL RECOVERY | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility | Remaining Reserves | Reserves Added | Producibility |
| | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY | THOUSANDS OF CUBIC METRES | THOUSANDS OF CUBIC METRES | CUBIC METRES PER DAY |
| 1983 | 0 | 10,883 | 1,270 | 0 | 928 | 203 | 0 | 11,811 | 1,473 |
| 1984 | 10,419 | 11,316 | 3,887 | 854 | 928 | 457 | 11,273 | 12,244 | 4,344 |
| 1985 | 20,317 | 10,429 | 6,194 | 1,615 | 2,486 | 972 | 21,932 | 12,915 | 7,166 |
| 1986 | 28,485 | 8,285 | 7,895 | 3,746 | 4,682 | 1,993 | 32,231 | 12,967 | 9,888 |
| 1987 | 33,888 | 6,893 | 8,985 | 7,701 | 2,986 | 2,914 | 41,589 | 9,879 | 11,899 |
| 1988 | 37,502 | 5,954 | 9,693 | 9,623 | 3,657 | 4,081 | 47,125 | 9,611 | 13,774 |
| 1989 | 39,918 | 5,203 | 10,134 | 11,791 | 3,428 | 5,064 | 51,708 | 8,631 | 15,198 |
| 1990 | 41,422 | 4,595 | 10,393 | 13,370 | 4,047 | 6,100 | 54,792 | 8,642 | 16,493 |
| 1991 | 42,223 | 3,908 | 10,490 | 15,191 | 4,795 | 7,133 | 57,414 | 8,703 | 17,623 |
| 1992 | 42,303 | 3,413 | 10,439 | 17,382 | 4,543 | 8,282 | 59,685 | 7,956 | 18,721 |
| 1993 | 41,905 | 2,927 | 10,277 | 18,902 | 4,791 | 9,417 | 60,808 | 7,718 | 19,694 |
| 1994 | 41,081 | 2,548 | 10,024 | 20,256 | 5,255 | 10,634 | 61,337 | 7,803 | 20,658 |
| 1995 | 39,970 | 2,280 | 9,710 | 21,630 | 5,255 | 11,689 | 61,600 | 7,535 | 21,399 |
| 1996 | 38,706 | 1,905 | 9,346 | 22,618 | 5,255 | 12,664 | 61,325 | 7,160 | 22,010 |
| 1997 | 37,200 | 1,684 | 8,935 | 23,251 | 5,255 | 13,390 | 60,451 | 6,939 | 22,325 |
| 1998 | 35,623 | 1,487 | 8,515 | 23,619 | 5,255 | 13,919 | 59,241 | 6,742 | 22,434 |
| 1999 | 34,002 | 1,264 | 8,086 | 23,793 | 5,255 | 14,328 | 57,795 | 6,519 | 22,414 |
| 2000 | 32,314 | 1,059 | 7,646 | 23,818 | 5,719 | 14,645 | 56,133 | 6,778 | 22,291 |
| 2001 | 30,583 | 946 | 7,209 | 24,192 | 5,719 | 14,891 | 54,775 | 6,665 | 22,100 |
| 2002 | 28,897 | 729 | 6,775 | 24,476 | 5,719 | 15,024 | 53,373 | 6,448 | 21,799 |
| 2003 | 27,153 | 607 | 6,342 | 24,711 | 5,719 | 15,240 | 51,864 | 6,326 | 21,582 |
| 2004 | 25,446 | 551 | 5,926 | 24,867 | 5,719 | 15,428 | 50,313 | 6,270 | 21,354 |
| 2005 | 23,834 | 528 | 5,540 | 24,955 | 5,719 | 15,606 | 48,789 | 6,247 | 21,146 |
| | | 89,394 | | | 103,115 | | | 192,509 | |

TABLE X

SASKATCHEWAN ESTABLISHED NATURAL GAS RESERVES

BY POOL*

(Billions of Cubic Metres)

| | Initial Recoverable Reserves | Initial Marketable Reserves | Remaining Recoverable Reserves | Remaining Marketable Reserves |
|---|---|---|---|---|
| Bayhurst Viking Unit | 1.951 | 1.951 | 0.230 | 0.230 |
| Bayhurst West Viking Unit | 0.217 | 0.217 | 0.051 | 0.051 |
| Beacon Hill Mannville | 3.667 | 3.667 | 2.116 | 2.116 |
| Beverley East Cantuar Unit | 0.323 | 0.323 | 0.131 | 0.131 |
| Brock Viking Unit | 0.567 | 0.567 | 0.021 | 0.021 |
| Coleville-Smiley Viking Unit | 5.221 | 5.070 | 0.538 | 0.538 |
| Dodsland North Viking Unit | 0.665 | 0.665 | 0.267 | 0.267 |
| Dodsland North Viking Non-Unit | 2.606 | 2.606 | 2.578 | 2.578 |
| Glidden Viking Unit | 0.230 | 0.230 | 0.157 | 0.157 |
| Greenan Viking | 0.448 | 0.448 | 0.174 | 0.174 |
| Gull Lake Cantuar | 0.665 | 0.487 | 0.187 | 0.187 |
| Hatton Medicine Hat Unit | 5.222 | 5.222 | 1.481 | 1.481 |
| Hatton Medicine Hat Ag. Area | 1.497 | 1.439 | 0.879 | 0.845 |
| Hatton Milk River-Medicine Hat Non-Unit | 17.346 | 16.704 | 12.875 | 12.399 |
| Hoosier Viking Unit | 3.308 | 3.212 | 1.033 | 1.033 |
| Liebenthal Milk River | 0.324 | 0.302 | 0.229 | 0.214 |
| Lloydminster Colony | 0.222 | 0.222 | 0.007 | 0.007 |
| Milton Viking | 0.846 | 0.821 | 0.079 | 0.076 |
| Pierceland Mannville | 1.397 | 1.397 | 0.904 | 0.904 |
| Totnes Viking Unit | 0.354 | 0.354 | 0.081 | 0.081 |
| Whiteside Victoria Unit | 0.426 | 0.414 | 0.042 | 0.040 |
| Whiteside West Viking | 0.622 | 0.622 | 0.621 | 0.621 |
| Miscellaneous Marketable | 2.002 | 1.937 | 1.244 | 1.204 |
| Miscellaneous Non-producing | 12.063 | 11.459 | 11.048 | 10.239 |
| Miscellaneous Lease Fuel | 6.146 | 0.000 | 5.108 | 0.000 |
| Dissolved Gas | 11.087 | 5.757 | 2.095 | 1.055 |
| Total | 79.422 | 66.093 | 44.176 | 36.649 |

* As of January 1, 1983

Pressure Base 101.325 kPa
Temperature Base 15°C

SASKATCHEWAN
NATURAL GAS SUPPLY AND REQUIREMENTS
(Billions of Cubic Metres)

TABLE XI

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Saskatchewan Requirements | | | | | | Saskatchewan Supply | | | |
| Year | SPC | Other | Total | Alberta Supply | Storage Out | Gross Deficit | Reserves Remaining @ Jan. 1 | Reserves Added | Deliverability | Net Deficit |
| 1982 | 2.91 | 0.34 | 3.25 | 1.92 | 0.01 | 1.33 | 41.19 | 4.31 | 1.32 | - |
| 1983 | 2.61 | 0.36 | 2.97 | 1.85 | -0.01 | 1.13 | 44.18 | 3.50 | 1.13 | - |
| 1984 | 2.68 | 0.38 | 3.06 | 1.83 | - | 1.23 | 46.55 | 3.00 | 1.23 | - |
| 1985 | 2.77 | 0.40 | 3.17 | 1.76 | - | 1.41 | 48.32 | 3.00 | 1.41 | - |
| 1986 | 2.83 | 0.45 | 3.28 | 1.71 | - | 1.57 | 49.91 | 5.00 | 1.57 | - |
| 1987 | 2.90 | 0.48 | 3.38 | 1.66 | - | 1.72 | 53.34 | 5.00 | 1.72 | - |
| 1988 | 3.00 | 0.61 | 3.61 | 1.62 | - | 1.99 | 56.62 | 5.00 | 1.99 | - |
| 1989 | 3.04 | 0.64 | 3.68 | 1.61 | - | 2.07 | 59.63 | 5.00 | 2.07 | - |
| 1990 | 3.11 | 0.67 | 3.78 | 1.57 | - | 2.21 | 62.56 | 5.00 | 2.21 | - |
| 1991 | 3.12 | 0.70 | 3.82 | 1.33 | - | 2.49 | 65.35 | 5.00 | 2.49 | - |
| 1992 | 3.20 | 0.73 | 3.93 | 0.44 | - | 3.49 | 67.86 | 4.00 | 3.39 | 0.10 |
| 1993 | 3.24 | 0.77 | 4.01 | 0.41 | - | 3.60 | 68.47 | 4.00 | 3.42 | 0.18 |
| 1994 | 3.26 | 0.81 | 4.07 | 0.39 | - | 3.68 | 69.05 | 4.00 | 3.45 | 0.23 |
| 1995 | 3.30 | 0.85 | 4.15 | 0.36 | - | 3.79 | 69.60 | 4.00 | 3.48 | 0.31 |
| 1996 | 3.33 | 0.90 | 4.23 | 0.34 | - | 3.89 | 70.12 | 4.00 | 3.51 | 0.38 |
| 1997 | 3.36 | 0.94 | 4.30 | 0.32 | - | 3.98 | 70.61 | 4.00 | 3.53 | 0.45 |
| 1998 | 3.39 | 0.98 | 4.37 | 0.30 | - | 4.07 | 71.08 | 4.00 | 3.55 | 0.52 |
| 1999 | 3.41 | 1.03 | 4.44 | 0.28 | - | 4.16 | 71.53 | 4.00 | 3.58 | 0.58 |
| 2000 | 3.45 | 1.07 | 4.52 | 0.27 | - | 4.25 | 71.95 | 4.00 | 3.60 | 0.65 |
| 2001 | 3.47 | 1.12 | 4.59 | 0.25 | - | 4.34 | 72.35 | 4.00 | 3.62 | 0.72 |
| 2002 | 3.50 | 1.17 | 4.67 | 0.24 | - | 4.43 | 72.73 | 4.00 | 3.64 | 0.79 |
| 2003 | 3.52 | 1.23 | 4.75 | 0.22 | - | 4.53 | 73.09 | 4.00 | 3.65 | 0.88 |
| 2004 | 3.57 | 1.28 | 4.85 | 0.21 | - | 4.64 | 73.44 | 4.00 | 3.67 | 0.97 |
| 2005 | 3.61 | 1.34 | 4.95 | 0.20 | - | 4.75 | 73.77 | 4.00 | 3.69 | 1.06 |

## NOTES TO TABLE XI

### COLUMN

(2) S.P.C. estimate of provincial gas requirements.

(3) Estimate by Department of provincial gas requirements for lease fuel, Steelman Gas exports etc. The demand for lease fuel is expected to increase because of the implementation of enhanced oil recovery (tertiary) projects in the heavy oil areas.

(5) S.P.C. estimate of gas supplies from its owned and contracted reserves in Alberta plus the TransCanada Pipeline Ltd.'s contract.

(6) Estimate of the withdrawal of storage gas required.

(7) Gross Deficit (Before Saskatchewan Supply) = (4) minus [(5) and (6)].

(8) Established recoverable reserves remaining as of January 1 of each year.

(9) Estimate by Department of reserve development in Saskatchewan.

(10) Estimate by Department of deliverability from remaining reserves.

(11) Net Deficit = (7) minus (10)
The net deficit could be made up from increased supply from Alberta and/or additional reserves added in Saskatchewan.

TABLE XII

1979 TOTAL DOMESTIC ENERGY DEMAND IN SASKATCHEWAN

($10^{15}$ joules)

| | REFINED PETROLEUM PRODUCTS | LIQUID PETROLEUM GASES | NATURAL GAS | COAL | ELECTRICITY | TOTAL |
|---|---|---|---|---|---|---|
| Residential | 12.1 | 3.9 | 32.6 | - | 10.0 | 58.6 |
| Commercial | 3.2 | 0.5 | 28.1 | - | 8.8 | 40.6 |
| Total Industrial | 9.4 | 0.4 | 37.8 | 2.0 | 10.5 | 60.1 |
| - Manufacturing | 7.1 | 0.4 | 13.4 | 1.8 | 4.2 | 26.9 |
| - Mining | 2.3 | - | 24.4 | 0.2 | 6.3 | 33.2 |
| Total Transportation | 75.0 | 0.1 | - | - | - | 75.1 |
| - Road | 65.1 | 0.1 | - | - | - | 65.2 |
| - Rail | 6.1 | - | - | - | - | 6.1 |
| - Air | 3.8 | - | - | - | - | 3.8 |
| Agricultural | 35.5 | 0.4 | - | - | 1.0 | 36.9 |
| TOTAL | 135.2 | 5.3 | 98.5 | 2.0 | 30.3 | 271.3 |

TABLE XIII

1980 TOTAL DOMESTIC ENERGY DEMAND IN SASKATCHEWAN

($10^{15}$ joules)

| | REFINED PETROLEUM PRODUCTS | LIQUID PETROLEUM GASES | NATURAL GAS | COAL | ELECTRICITY | TOTAL |
|---|---|---|---|---|---|---|
| Residential | 10.4 | 2.9 | 29.2 | 0.3 | 9.7 | 52.5 |
| Commercial | 2.5 | 0.6 | 27.0 | - | 9.3 | 39.4 |
| Total Industrial | 9.8 | 0.5 | 38.4 | 4.0 | 11.2 | 63.9 |
| - Manufacturing | 7.9 | 0.5 | 12.6 | 3.8 | 4.5 | 29.3 |
| - Mining | 1.9 | - | 25.8 | 0.2 | 6.7 | 34.6 |
| Total Transportation | 78.8 | 0.2 | - | - | - | 79.0 |
| - Road | 69.5 | 0.2 | - | - | - | 69.7 |
| - Rail | 5.3 | - | - | - | - | 5.3 |
| - Air | 4.0 | - | - | - | - | 4.0 |
| Agricultural | 31.5 | 0.2 | - | - | 1.0 | 32.7 |
| TOTAL | 133.0 | 4.4 | 94.6 | 4.3 | 31.2 | 267.5 |

TABLE XIV

1981 TOTAL DOMESTIC ENERGY DEMAND IN SASKATCHEWAN

($10^{15}$ joules)

| | REFINED PETROLEUM PRODUCTS | LIQUID PETROLEUM GASES | NATURAL GAS | COAL | ELECTRICITY | TOTAL |
|---|---|---|---|---|---|---|
| Residential | 8.6 | 2.3 | 27.5 | 0.2 | 10.2 | 48.8 |
| Commercial | 2.4 | 0.7 | 26.0 | - | 10.0 | 39.1 |
| Total Industrial | 9.0 | 0.4 | 38.8 | 4.6 | 10.9 | 63.7 |
| - Manufacturing | 7.1 | 0.4 | 12.4 | 4.6 | 4.5 | 29.0 |
| - Mining | 1.9 | - | 26.4 | - | 6.4 | 34.7 |
| Total Transportation | 77.9 | 0.2 | - | - | - | 78.1 |
| - Road | 68.3 | 0.2 | - | - | - | 68.5 |
| - Rail | 5.5 | - | - | - | - | 5.5 |
| - Air | 4.1 | - | - | - | - | 4.1 |
| Agricultural | 29.3 | 0.2 | - | - | 1.0 | 30.5 |
| TOTAL | 127.2 | 3.8 | 92.3 | 4.8 | 32.1 | 260.2 |

TABLE XV

1982 TOTAL DOMESTIC ENERGY DEMAND IN SASKATCHEWAN

($10^{15}$ joules)

| | REFINED PETROLEUM PRODUCTS | LIQUID PETROLEUM GASES | NATURAL GAS | COAL | ELECTRICITY | TOTAL |
|---|---|---|---|---|---|---|
| Residential | 9.3 | 2.2 | 33.6 | - | 11.1 | 56.2 |
| Commercial | 11.2 | 0.9 | 27.8 | 0.2 | 10.0 | 50.1 |
| Total Industrial | 8.5 | 0.5 | 34.8 | 4.7 | 9.8 | 58.3 |
| - Manufacturing | 6.4 | 0.5 | 11.5 | 4.7 | 3.9 | 27.0 |
| - Mining | 2.1 | - | 23.3 | - | 5.9 | 31.3 |
| Total Transportation | 69.4 | 0.2 | - | - | - | 69.6 |
| - Road | 60.6 | 0.2 | - | - | - | 60.8 |
| - Rail | 5.1 | - | - | - | - | 5.1 |
| - Air | 3.7 | - | - | - | - | 3.7 |
| Agricultural | 25.4 | 0.2 | - | - | 1.2 | 26.8 |
| TOTAL | 123.8 | 4.0 | 96.2 | 4.9 | 32.1 | 261.0 |

TABLE XVI

1979 DEMAND FOR REFINED PETROLEUM PRODUCTS IN SASKATCHEWAN

($10^3$ cubic metres)

| | MOTOR GASOLINE | DIESEL | KEROSENE | LIGHT FUEL OIL | HEAVY FUEL OIL | AVIATION FUEL | TOTAL |
|---|---|---|---|---|---|---|---|
| Residential | - | - | 160 | 158 | - | - | 318 |
| Commercial | - | 33 | 17 | 30 | 2 | - | 82 |
| Total Industrial | - | 160 | 4 | 35 | 42 | - | 241 |
| - Manufacturing | - | 122 | 2 | 21 | 36 | - | 181 |
| - Mining | - | 38 | 2 | 14 | 6 | - | 60 |
| Total Transportation | 1,489 | 507 | - | - | - | 108 | 2,104 |
| - Road | 1,489 | 349 | - | - | - | - | 1,838 |
| - Rail | - | 158 | - | - | - | - | 158 |
| - Air | - | - | - | - | - | 108 | 108 |
| Agricultural | 605 | 375 | - | - | - | - | 980 |
| TOTAL | 2,094 | 1,075 | 181 | 223 | 44 | 108 | 3,725 |

TABLE XVII

1980 DEMAND FOR REFINED PETROLEUM PRODUCTS IN SASKATCHEWAN

($10^3$ cubic metres)

| | MOTOR GASOLINE | DIESEL | KEROSENE | LIGHT FUEL OIL | HEAVY FUEL OIL | AVIATION FUEL | TOTAL |
|---|---|---|---|---|---|---|---|
| Residential | - | - | 137 | 135 | - | - | 272 |
| Commercial | - | 31 | 15 | 16 | 3 | - | 65 |
| Total Industrial | - | 144 | 2 | 41 | 62 | - | 249 |
| - Manufacturing | - | 108 | 1 | 38 | 53 | - | 200 |
| - Mining | - | 36 | 1 | 3 | 9 | - | 49 |
| Total Transportation | 1,558 | 537 | - | - | - | 112 | 2,207 |
| - Road | 1,558 | 401 | - | - | - | - | 1,959 |
| - Rail | - | 136 | - | - | - | - | 136 |
| - Air | - | - | - | - | - | 112 | 112 |
| Agricultural | 501 | 366 | - | - | - | - | 867 |
| TOTAL | 2,059 | 1,078 | 154 | 192 | 65 | 112 | 3,660 |

TABLE XVIII

1981 DEMAND FOR REFINED PETROLEUM PRODUCTS IN SASKATCHEWAN

($10^3$ cubic metres)

| | MOTOR GASOLINE | DIESEL | KEROSENE | LIGHT FUEL OIL | HEAVY FUEL OIL | AVIATION FUEL | TOTAL |
|---|---|---|---|---|---|---|---|
| Residential | - | - | 104 | 120 | - | - | 224 |
| Commercial | - | 34 | 14 | 13 | 3 | - | 61 |
| Total Industrial | - | 139 | 2 | 32 | 56 | - | 229 |
| - Manufacturing | - | 114 | 1 | 14 | 51 | - | 180 |
| - Mining | - | 25 | 1 | 18 | 5 | - | 49 |
| Total Transportation | 1,541 | 525 | - | - | - | 116 | 2,182 |
| - Road | 1,541 | 384 | - | - | - | - | 1,925 |
| - Rail | - | 141 | - | - | - | - | 141 |
| - Air | - | - | - | - | - | 116 | 116 |
| Agricultural | 459 | 345 | - | - | - | - | 804 |
| TOTAL | 2,000 | 1,043 | 120 | 165 | 56 | 116 | 3,500 |

TABLE XIX

1982 DEMAND FOR REFINED PETROLEUM PRODUCTS IN SASKATCHEWAN

($10^3$ cubic metres)

| | MOTOR GASOLINE | DIESEL | KEROSENE | LIGHT FUEL OIL | HEAVY FUEL OIL | AVIATION FUEL | TOTAL |
|---|---|---|---|---|---|---|---|
| Residential | - | - | 125 | 119 | - | - | 244 |
| Commercial | - | 260 | 15 | 14 | 1 | - | 290 |
| Total Industrial | - | 123 | 2 | 31 | 58 | - | 214 |
| - Manufacturing | - | 93 | 1 | 17 | 49 | - | 160 |
| - Mining | - | 30 | 1 | 14 | 9 | - | 54 |
| Total Transportation | 1,532 | 327 | - | - | - | 104 | 1,963 |
| - Road | 1,532 | 196 | - | - | - | - | 1,728 |
| - Rail | - | 131 | - | - | - | - | 131 |
| - Air | - | - | - | - | - | 104 | 104 |
| Agricultural | 373 | 321 | - | - | - | - | 694 |
| TOTAL | 1,905 | 1,031 | 143 | 164 | 59 | 104 | 3,405 |

TABLE XX-A

TOTAL FINAL ENERGY DEMAND - CASE A

($10^{15}$ joules)

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1990 | 1995 | 2000 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Oil | 123.8 | 125.3 | 126.9 | 128.6 | 130.3 | 132.0 | 136.6 | 144.3 | 152.4 | 161.0 |
| LPG | 4.0 | 4.1 | 4.1 | 4.2 | 4.3 | 4.3 | 4.5 | 4.8 | 5.2 | 5.6 |
| Coal | 4.9 | 5.0 | 5.2 | 5.4 | 5.6 | 5.8 | 6.2 | 6.5 | 6.9 | 7.3 |
| Natural Gas | 96.2 | 92.6 | 98.0 | 101.1 | 104.5 | 107.5 | 113.8 | 122.4 | 129.4 | 134.4 |
| Electricity | 32.1 | 33.9 | 35.4 | 36.9 | 38.6 | 40.4 | 44.2 | 51.1 | 57.5 | 64.0 |
| TOTAL | 261.0 | 260.9 | 269.6 | 276.2 | 283.3 | 290.0 | 305.3 | 329.1 | 351.4 | 372.3 |

TABLE XX-B

TOTAL FINAL ENERGY DEMAND - CASE B

($10^{15}$ joules)

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1990 | 1995 | 2000 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Oil | 123.8 | 124.9 | 126.2 | 127.4 | 128.7 | 130.0 | 133.4 | 138.8 | 144.5 | 150.0 |
| LPG | 4.0 | 4.1 | 4.1 | 4.2 | 4.2 | 4.3 | 4.4 | 4.7 | 5.0 | 5.3 |
| Coal | 4.9 | 5.0 | 5.1 | 5.2 | 5.3 | 5.5 | 5.9 | 6.3 | 6.7 | 7.0 |
| Natural Gas | 96.2 | 92.6 | 97.7 | 100.8 | 104.2 | 107.1 | 112.6 | 120.1 | 127.0 | 131.9 |
| Electricity | 32.1 | 33.9 | 35.3 | 36.7 | 38.3 | 40.0 | 43.4 | 49.2 | 55.0 | 60.8 |
| TOTAL | 261.0 | 260.5 | 268.4 | 274.3 | 280.7 | 286.9 | 299.7 | 319.1 | 338.2 | 355.0 |

TABLE XX-C

TOTAL FINAL ENERGY DEMAND - CASE C

($10^{15}$ joules)

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1990 | 1995 | 2000 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Oil | 123.8 | 125.0 | 126.3 | 127.7 | 129.0 | 130.4 | 133.8 | 139.7 | 145.8 | 152.2 |
| LPG | 4.0 | 4.0 | 4.1 | 4.2 | 4.2 | 4.3 | 4.4 | 4.7 | 5.0 | 5.4 |
| Coal | 4.9 | 5.0 | 5.1 | 5.2 | 5.4 | 5.6 | 6.0 | 6.3 | 6.7 | 7.1 |
| Natural Gas | 96.2 | 92.6 | 97.8 | 100.9 | 104.3 | 107.2 | 113.0 | 120.8 | 127.6 | 132.3 |
| Electricity | 32.1 | 33.9 | 35.0 | 36.2 | 37.8 | 39.6 | 43.3 | 48.9 | 54.8 | 60.5 |
| TOTAL | 261.0 | 260.5 | 268.3 | 274.2 | 280.7 | 287.1 | 300.5 | 320.4 | 339.9 | 357.5 |

TABLE XX-D

TOTAL FINAL ENERGY DEMAND - CASE D

($10^{15}$ joules)

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1990 | 1995 | 2000 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Oil | 123.8 | 125.9 | 128.1 | 130.3 | 132.6 | 135.0 | 140.9 | 151.3 | 162.5 | 174.6 |
| LPG | 4.0 | 4.1 | 4.1 | 4.2 | 4.3 | 4.4 | 4.6 | 4.9 | 5.3 | 5.8 |
| Coal | 4.9 | 5.1 | 5.3 | 5.5 | 5.7 | 5.9 | 6.3 | 6.7 | 7.2 | 7.5 |
| Natural Gas | 96.2 | 92.6 | 98.5 | 101.6 | 104.8 | 107.9 | 114.3 | 122.9 | 129.9 | 135.0 |
| Electricity | 32.1 | 33.9 | 35.1 | 36.5 | 38.3 | 40.3 | 43.9 | 50.7 | 57.1 | 63.7 |
| TOTAL | 261.0 | 261.6 | 271.1 | 278.1 | 285.7 | 293.5 | 310.0 | 336.5 | 362.0 | 386.6 |

## TABLE XX1-A
## SECONDARY ENERGY DEMAND - CASE A
## ($10^{15}$ joules)

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1990 | 1995 | 2000 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Residential | 54.0 | 54.3 | 54.7 | 55.1 | 55.5 | 55.9 | 56.7 | 57.9 | 59.1 | 60.3 |
| Commercial | 69.0 | 70.3 | 71.6 | 73.0 | 74.4 | 75.8 | 79.7 | 86.3 | 93.4 | 101.1 |
| Industrial | 57.8 | 60.6 | 63.5 | 66.5 | 69.7 | 73.1 | 83.0 | 101.4 | 123.8 | 151.2 |
| Transportation | 69.4 | 70.4 | 71.5 | 72.5 | 73.6 | 74.7 | 77.9 | 83.3 | 89.1 | 95.3 |
| Agriculture | 26.5 | 25.2 | 24.1 | 23.9 | 24.0 | 24.2 | 25.0 | 26.0 | 27.3 | 28.7 |
| TOTAL | 276.7 | 280.8 | 285.4 | 291.0 | 297.2 | 303.7 | 322.3 | 354.9 | 392.7 | 436.6 |

## TABLE XX1-B
## SECONDARY ENERGY DEMAND - CASE B
## ($10^{15}$ joules)

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1990 | 1995 | 2000 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Residential | 54.0 | 54.2 | 54.4 | 54.7 | 54.9 | 55.1 | 55.6 | 56.3 | 57.0 | 57.7 |
| Commercial | 69.0 | 70.1 | 71.2 | 72.3 | 73.4 | 74.6 | 77.8 | 81.2 | 89.0 | 95.2 |
| Industrial | 57.8 | 60.4 | 63.1 | 65.9 | 68.8 | 71.9 | 80.9 | 97.4 | 117.4 | 141.3 |
| Transportation | 69.4 | 70.1 | 70.8 | 71.6 | 72.3 | 73.0 | 75.2 | 78.8 | 82.5 | 86.4 |
| Agriculture | 26.5 | 25.2 | 24.0 | 23.8 | 24.0 | 24.1 | 24.8 | 25.7 | 27.0 | 28.5 |
| TOTAL | 276.7 | 280.0 | 283.5 | 288.3 | 293.4 | 298.7 | 314.3 | 339.4 | 372.8 | 409.1 |

TABLE XX1-C

SECONDARY ENERGY DEMAND -CASE C

($10^{15}$ joules)

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1990 | 1995 | 2000 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Residential | 54.0 | 54.3 | 54.5 | 54.8 | 55.0 | 55.3 | 55.8 | 56.6 | 57.5 | 58.2 |
| Commercial | 69.0 | 70.1 | 71.3 | 72.5 | 73.7 | 74.9 | 78.1 | 83.8 | 89.9 | 96.4 |
| Industrial | 57.8 | 60.4 | 63.1 | 66.0 | 69.0 | 72.1 | 80.7 | 97.4 | 117.6 | 142.0 |
| Transportation | 69.4 | 70.2 | 71.0 | 71.8 | 72.6 | 73.4 | 75.7 | 79.5 | 83.6 | 87.8 |
| Agriculture | 26.5 | 25.2 | 24.1 | 23.9 | 24.1 | 24.2 | 24.9 | 25.8 | 27.2 | 28.6 |
| TOTAL | 276.7 | 280.2 | 284.0 | 289.0 | 294.4 | 299.8 | 315.2 | 343.1 | 375.8 | 413.0 |

TABLE XX1-D

SECONDARY ENERGY DEMAND - CASE D

($10^{15}$ joules)

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1990 | 1995 | 2000 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Residential | 54.0 | 54.6 | 55.2 | 55.8 | 56.5 | 57.2 | 58.4 | 60.5 | 62.7 | 65.1 |
| Commercial | 69.0 | 70.5 | 72.0 | 73.5 | 75.1 | 76.7 | 80.9 | 88.5 | 96.8 | 105.8 |
| Industrial | 57.8 | 60.8 | 63.9 | 67.2 | 70.6 | 74.3 | 84.5 | 104.6 | 129.5 | 160.4 |
| Transportation | 69.4 | 70.8 | 72.2 | 73.7 | 75.2 | 76.7 | 80.9 | 88.6 | 96.9 | 106.1 |
| Agriculture | 26.5 | 25.2 | 24.2 | 24.0 | 24.2 | 24.3 | 25.2 | 26.3 | 27.7 | 29.0 |
| TOTAL | 276.7 | 281.9 | 287.5 | 294.2 | 301.4 | 309.2 | 329.9 | 368.5 | 413.6 | 466.4 |

## TABLE XX11-A

## PRIMARY ENERGY DEMAND - CASE A

($10^{15}$ joules)

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1990 | 1995 | 2000 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Oil | 148.6 | 150.4 | 152.2 | 154.0 | 155.8 | 157.7 | 162.8 | 171.1 | 179.8 | 189.0 |
| LPG | 4.0 | 4.1 | 4.1 | 4.2 | 4.3 | 4.3 | 4.5 | 4.8 | 5.2 | 5.6 |
| Coal | 94.7 | 99.9 | 104.3 | 108.7 | 112.0 | 115.6 | 125.7 | 144.4 | 162.9 | 181.5 |
| Natural Gas | 109.1 | 102.0 | 108.1 | 111.3 | 113.3 | 116.2 | 125.0 | 136.2 | 141.8 | 146.7 |
| Hydro | 8.5 | 8.9 | 8.9 | 9.1 | 11.0 | 12.8 | 13.5 | 13.5 | 13.5 | 13.5 |
| TOTAL | 364.9 | 365.3 | 377.6 | 387.3 | 396.4 | 406.6 | 431.5 | 470.0 | 503.2 | 536.3 |

## TABLE XX11-B

## PRIMARY ENERGY DEMAND - CASE B

($10^{15}$ joules)

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1990 | 1995 | 2000 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Oil | 148.6 | 150.1 | 151.6 | 153.6 | 154.6 | 156.2 | 160.1 | 166.0 | 172.0 | 178.5 |
| LPG | 4.0 | 4.1 | 4.1 | 4.2 | 4.2 | 4.3 | 4.5 | 4.7 | 5.0 | 5.4 |
| Coal | 94.7 | 99.9 | 104.1 | 108.2 | 111.3 | 114.5 | 123.6 | 139.3 | 156.0 | 172.7 |
| Natural Gas | 109.1 | 102.0 | 107.7 | 110.9 | 112.9 | 115.8 | 123.4 | 133.5 | 139.0 | 143.8 |
| Hydro | 8.5 | 8.9 | 8.8 | 9.0 | 10.8 | 12.6 | 13.3 | 13.3 | 13.3 | 13.3 |
| TOTAL | 364.9 | 365.0 | 376.3 | 385.9 | 393.8 | 403.4 | 424.9 | 456.8 | 485.3 | 513.7 |

TABLE XX11-C

PRIMARY ENERGY DEMAND - CASE C

($10^{15}$ joules)

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1990 | 1995 | 2000 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Oil | 148.6 | 150.0 | 151.5 | 152.9 | 154.4 | 155.9 | 159.6 | 166.0 | 172.6 | 179.6 |
| LPG | 4.0 | 4.1 | 4.1 | 4.2 | 4.2 | 4.3 | 4.5 | 4.7 | 5.1 | 5.4 |
| Coal | 94.7 | 98.0 | 101.4 | 105.0 | 108.7 | 112.5 | 122.9 | 142.5 | 160.5 | 179.0 |
| Natural Gas | 109.1 | 102.0 | 107.8 | 111.0 | 112.9 | 115.9 | 124.6 | 135.8 | 141.4 | 146.3 |
| Hydro | 8.5 | 8.9 | 8.9 | 9.1 | 11.0 | 12.8 | 13.5 | 13.5 | 13.5 | 13.5 |
| TOTAL | 364.9 | 363.0 | 373.7 | 382.2 | 391.2 | 401.4 | 425.1 | 462.5 | 493.1 | 523.8 |

TABLE XX11-D

PRIMARY ENERGY DEMAND - CASE D

($10^{15}$ joules)

| | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1990 | 1995 | 2000 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Oil | 148.6 | 151.0 | 153.6 | 156.2 | 158.8 | 161.4 | 167.8 | 178.9 | 190.7 | 203.3 |
| LPG | 4.0 | 4.1 | 4.1 | 4.2 | 4.3 | 4.4 | 4.6 | 4.9 | 5.4 | 5.8 |
| Coal | 94.7 | 98.6 | 102.5 | 106.6 | 110.9 | 115.3 | 127.8 | 148.1 | 167.6 | 189.6 |
| Natural Gas | 109.1 | 102.0 | 108.7 | 111.9 | 114.0 | 116.8 | 125.6 | 137.0 | 142.5 | 147.5 |
| Hydro | 8.5 | 8.9 | 8.9 | 9.1 | 11.0 | 12.8 | 13.5 | 13.5 | 13.5 | 13.5 |
| TOTAL | 364.9 | 364.7 | 377.8 | 388.0 | 399.0 | 410.7 | 439.3 | 482.4 | 519.7 | 559.7 |

FIGURE I

# SASKATCHEWAN CRUDE OIL PRODUCTIVE CAPACITY

## HUSKY PIPELINE LTD. AND MANITO PIPELINES LTD.

(LLOYDMINSTER HEAVY)

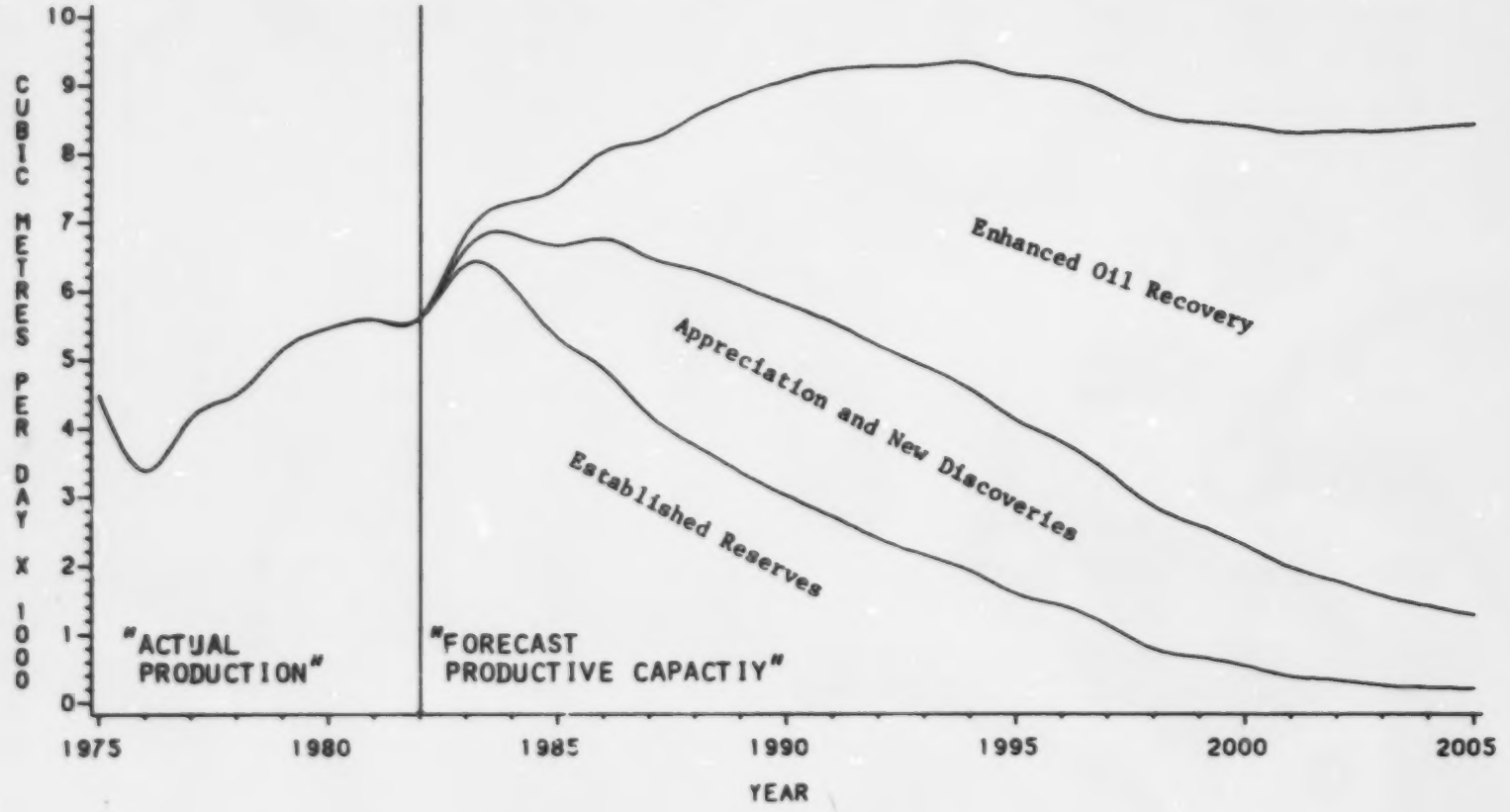


FIGURE II

# SASKATCHEWAN CRUDE OIL PRODUCTIVE CAPACITY

## BOW RIVER PIPE LINES LTD.
## AND CACTUS LAKE PIPELINE SYSTEM
(KINDERSLEY HEAVY)

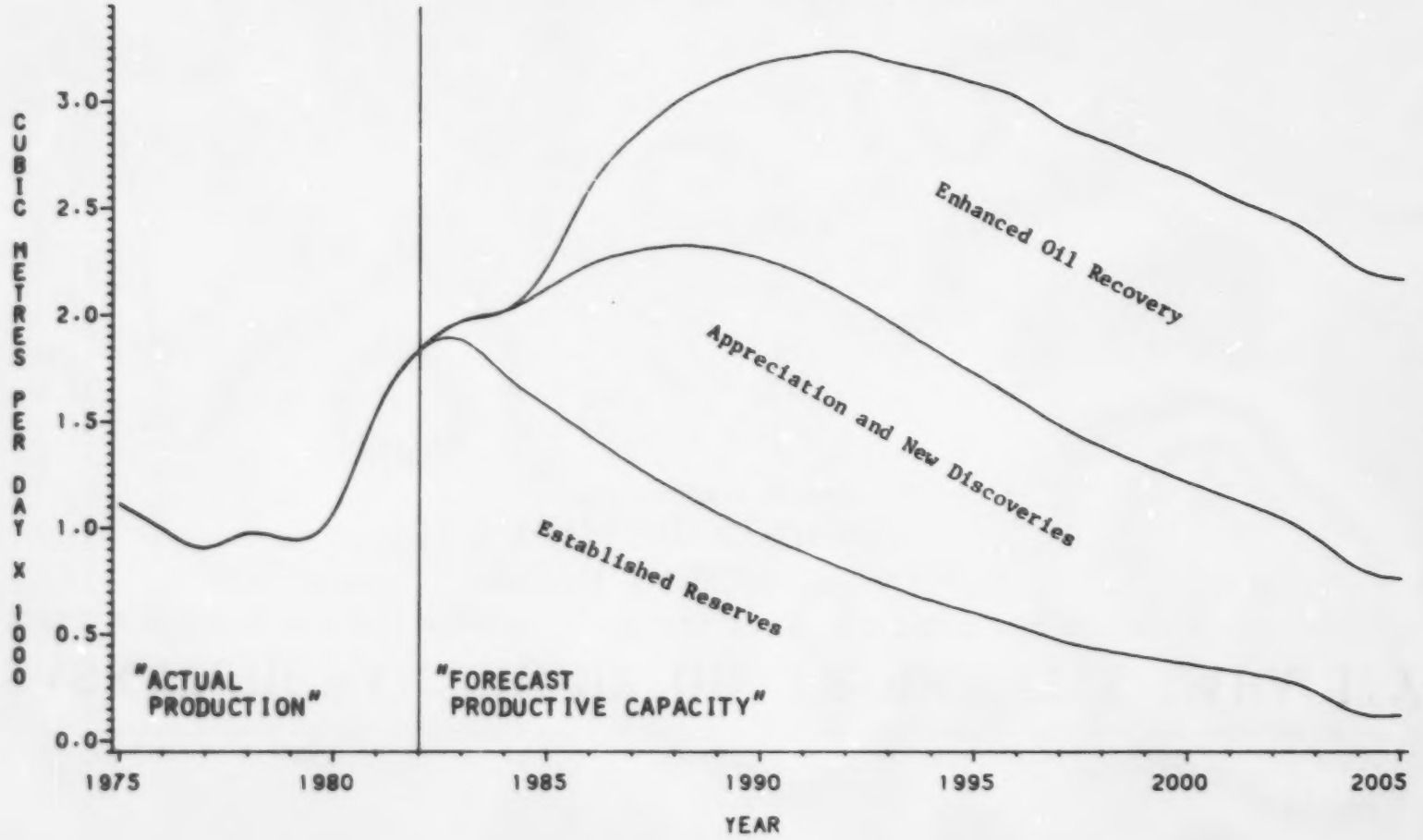


FIGURE III

# SASKATCHEWAN CRUDE OIL PRODUCTIVE CAPACITY

## SOUTH SASKATCHEWAN PIPELINE COMPANY

(SWIFT CURRENT MEDIUM)

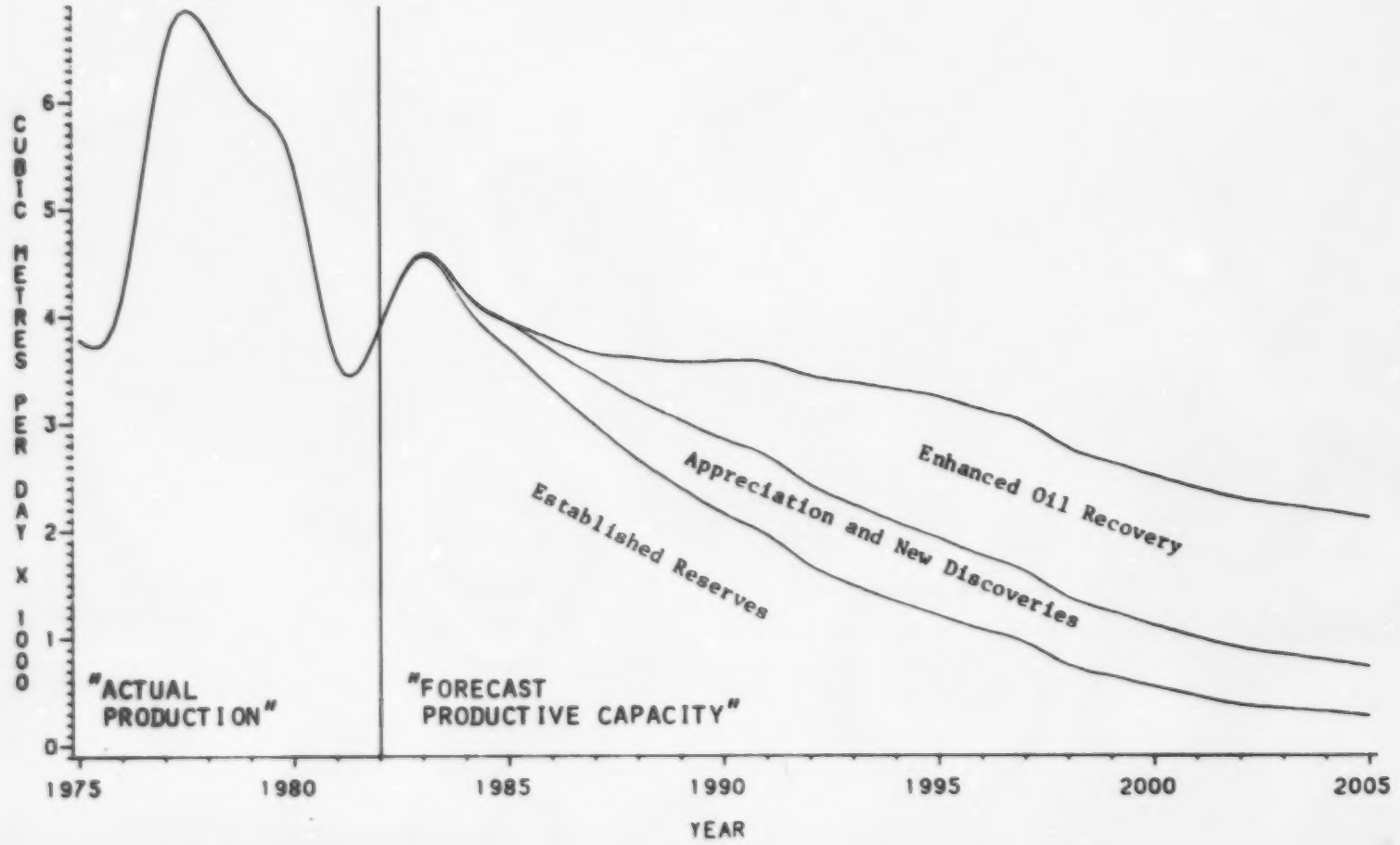


FIGURE IV

# SASKATCHEWAN CRUDE OIL PRODUCTIVE CAPACITY

## WESTSPUR PIPE LINE COMPANY

(S.E. SASKATCHEWAN MEDIUM)

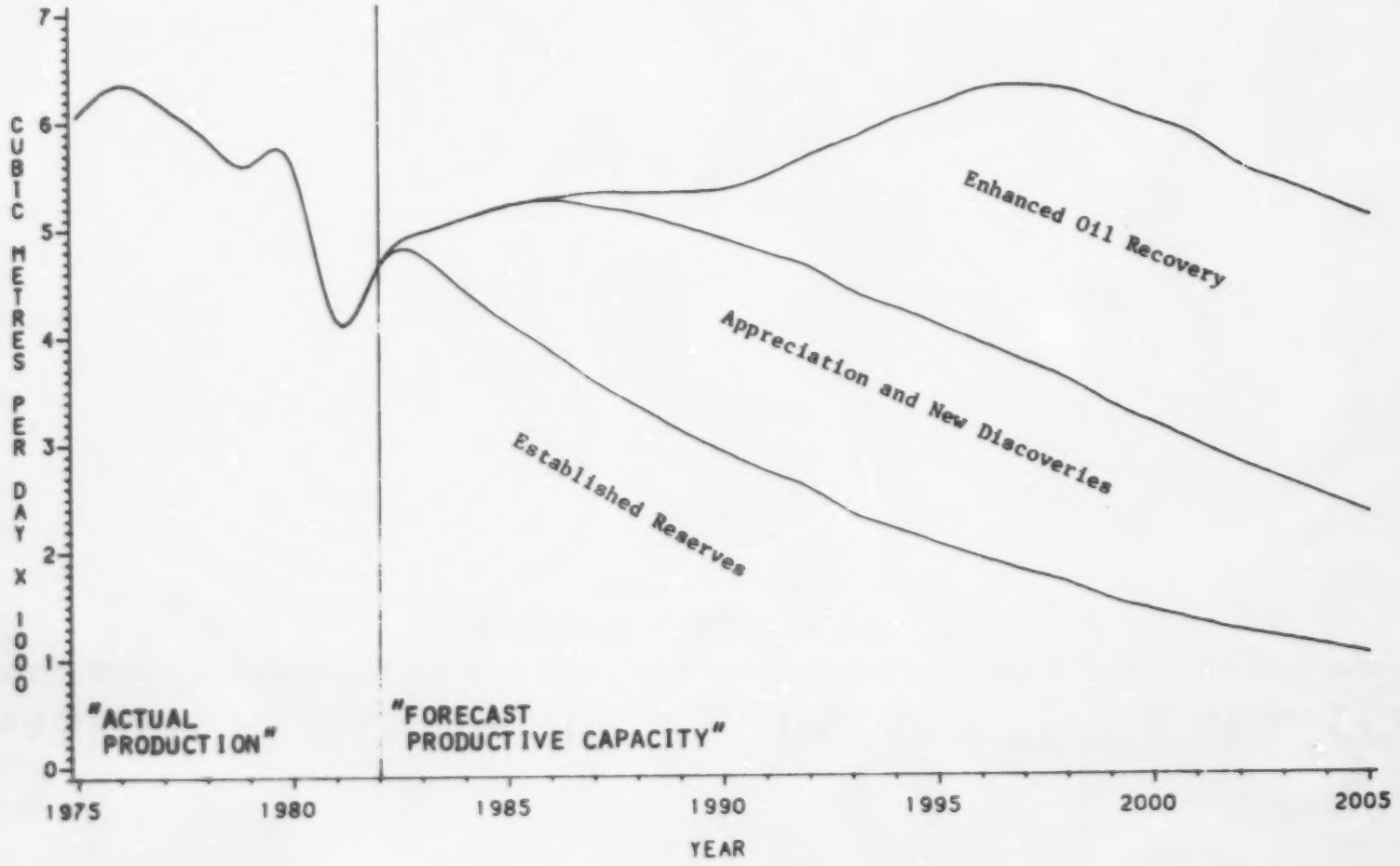
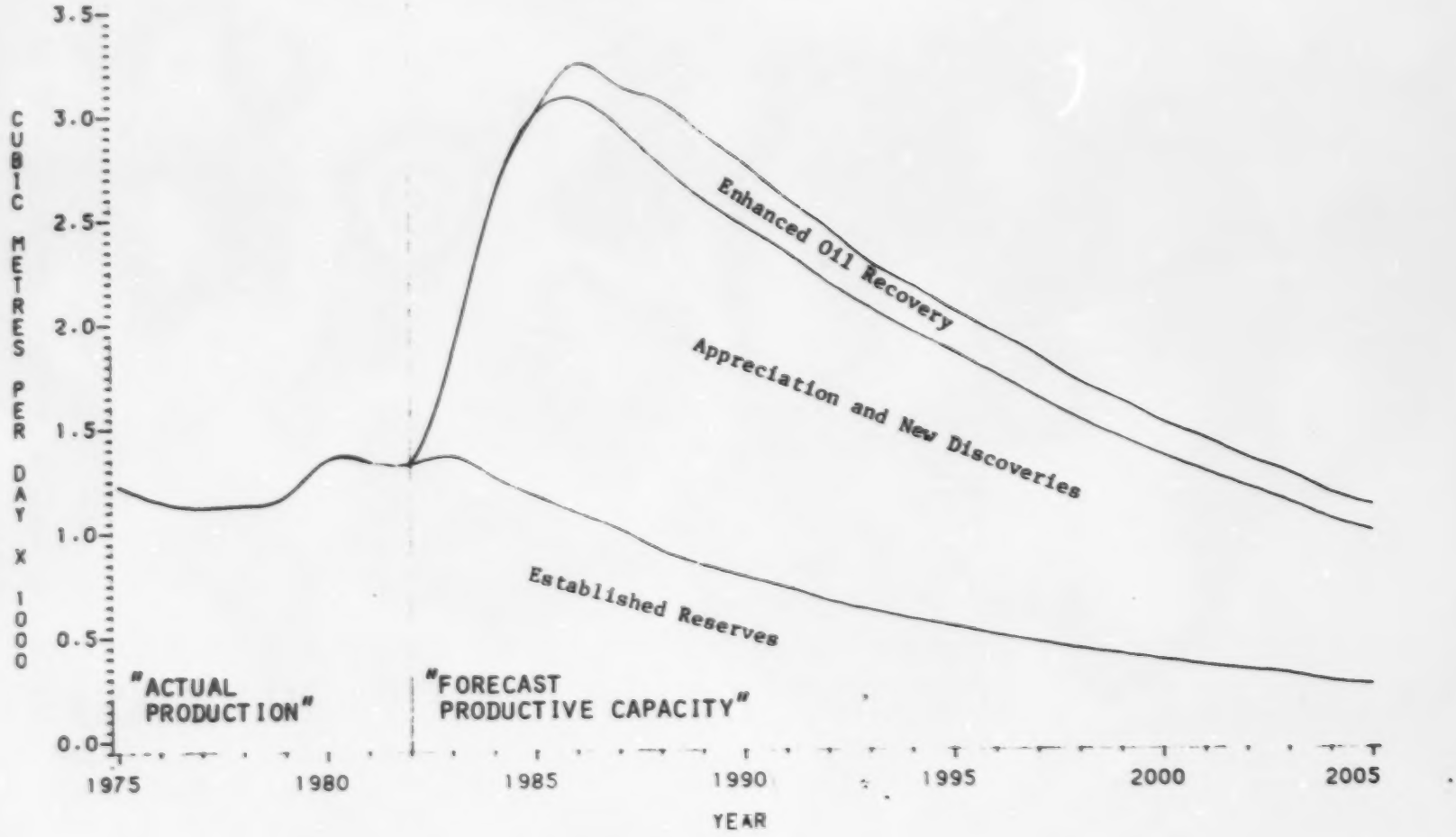


FIGURE V

# SASKATCHEWAN CRUDE OIL PRODUCTIVE CAPACITY

## BOW RIVER PIPE LINES LTD.

(KINDERSLEY LIGHT)



# SASKATCHEWAN CRUDE OIL PRODUCTIVE CAPACITY

## WESTSPUR PIPE LINE COMPANY

(S.E. SASKATCHEWAN LIGHT)

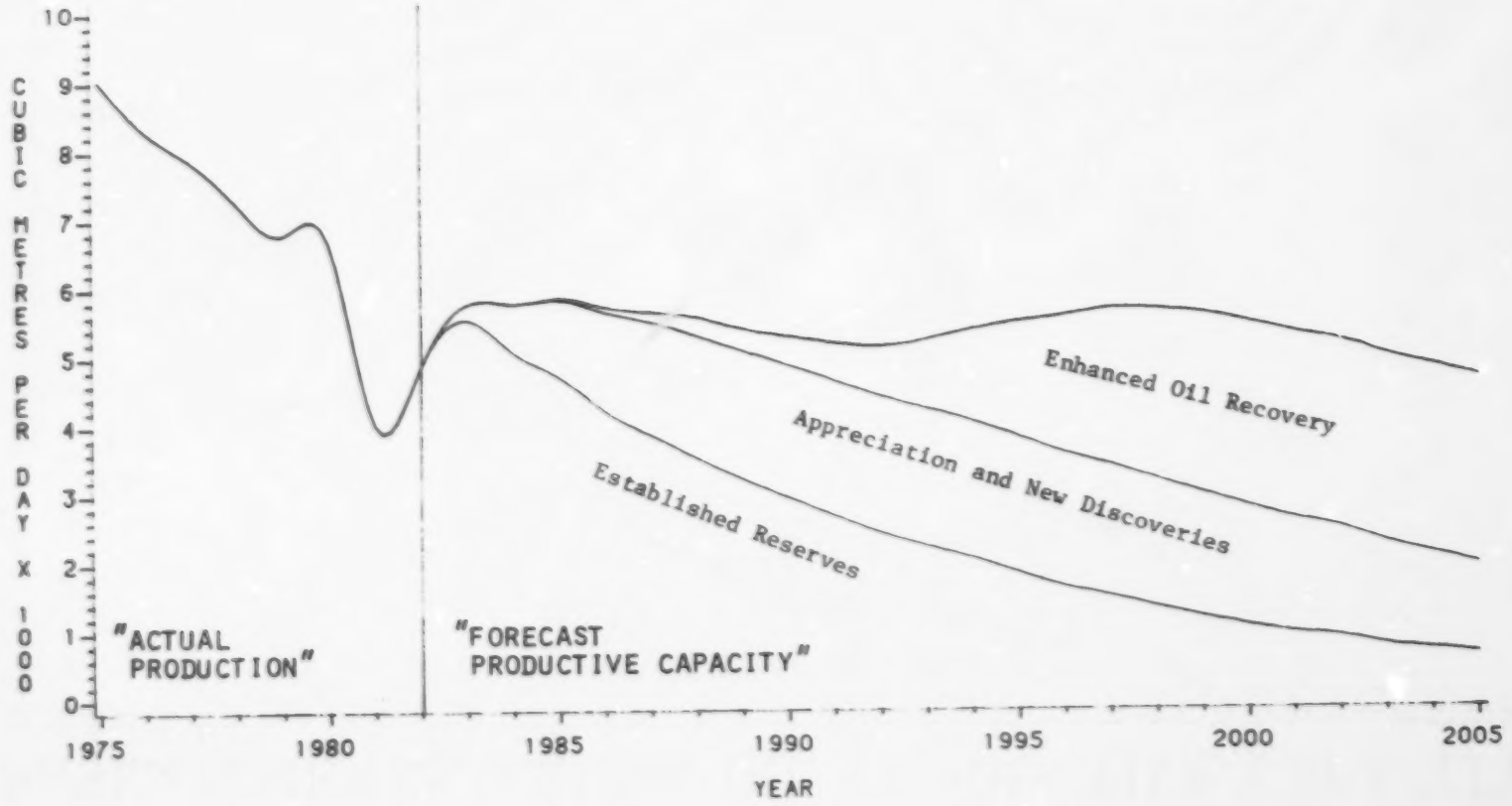


FIGURE VII

# SASKATCHEWAN CRUDE OIL PRODUCTIVE CAPACITY

## PROVINCIAL TOTAL
## HEAVY AND MEDIUM

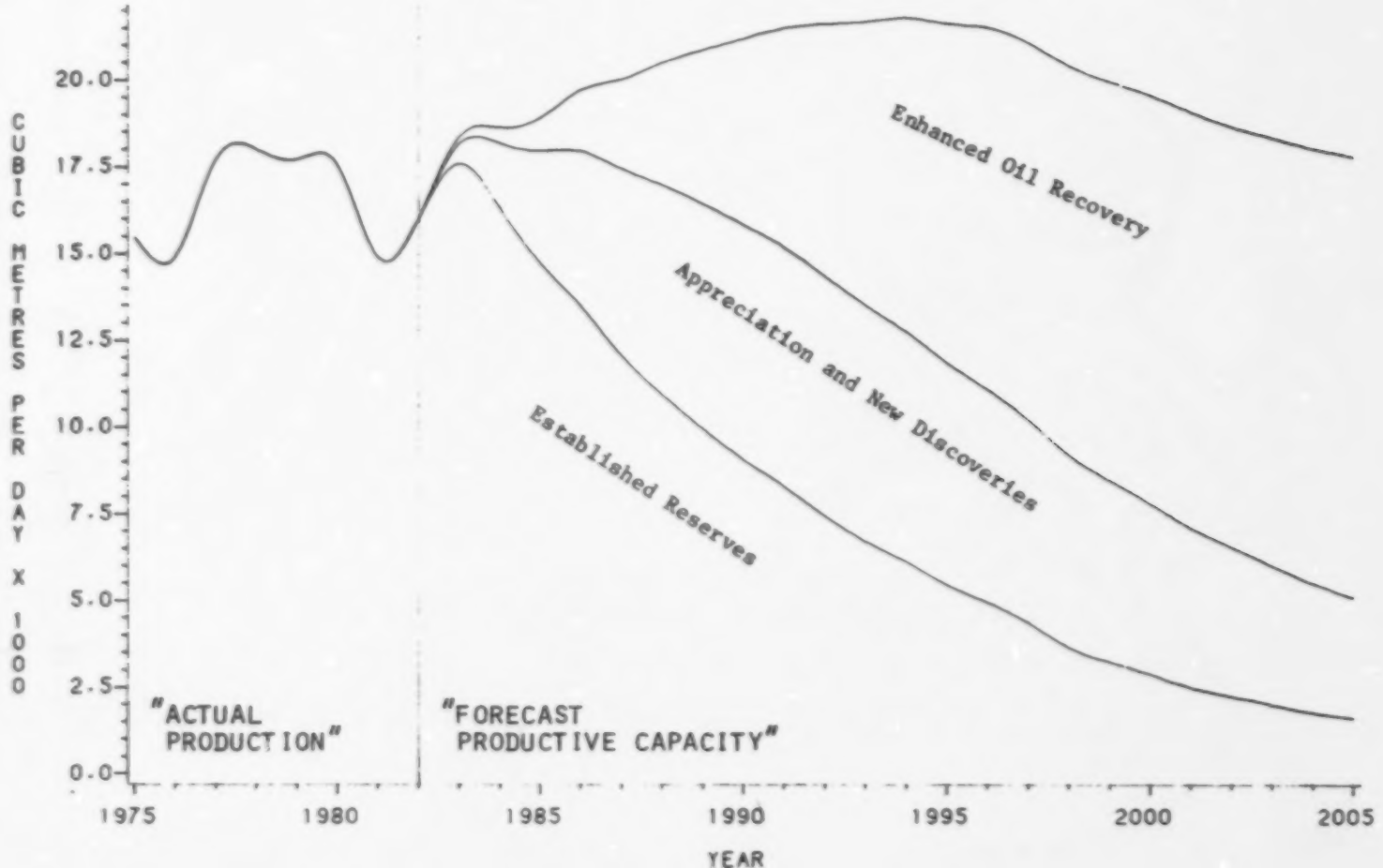


FIGURE VIII

# SASKATCHEWAN CRUDE OIL PRODUCTIVE CAPACITY

## PROVINCIAL TOTAL
## LIGHT

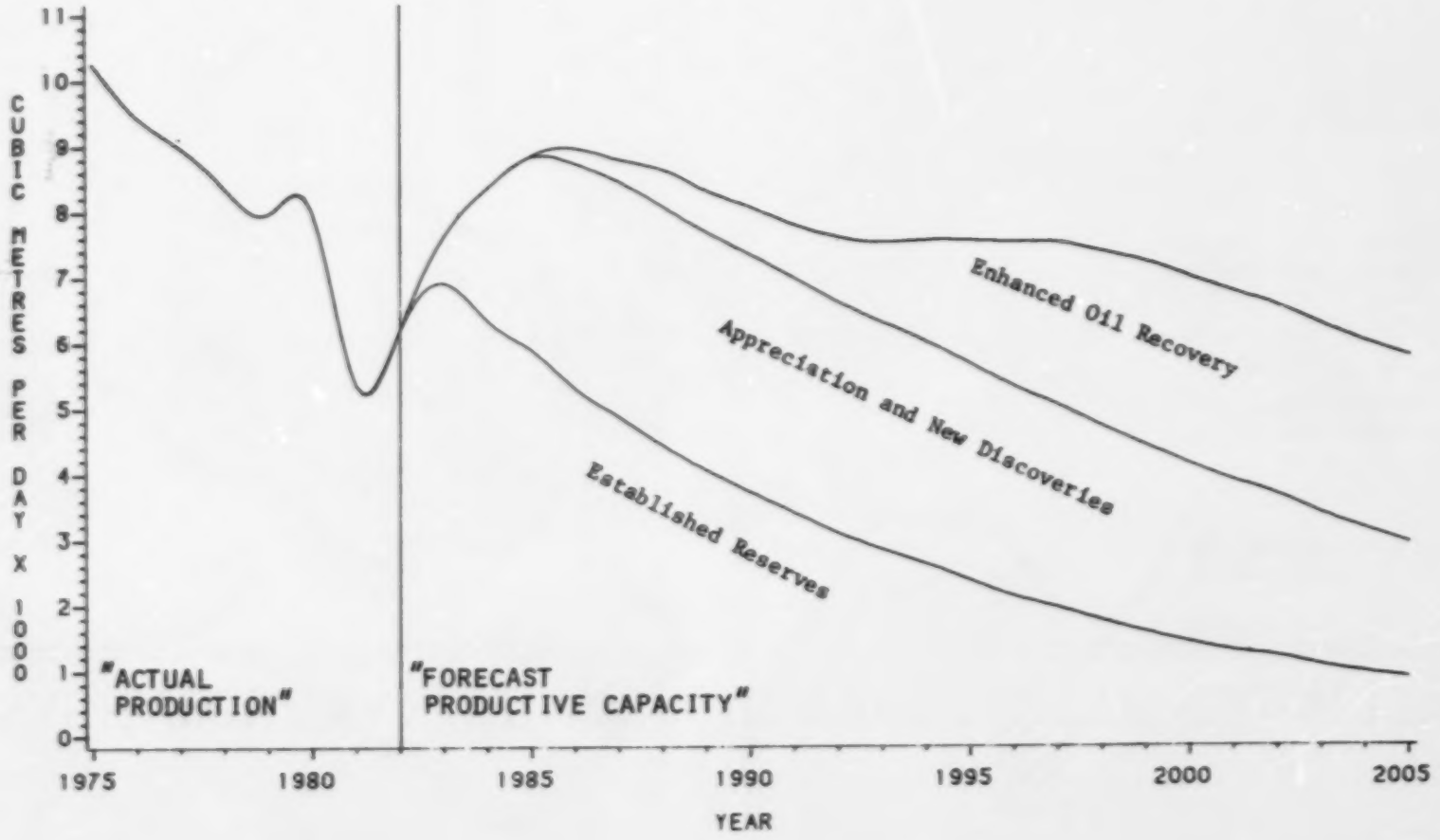


FIGURE IX

# SASKATCHEWAN CRUDE OIL PRODUCTIVE CAPACITY

## PROVINCIAL TOTAL

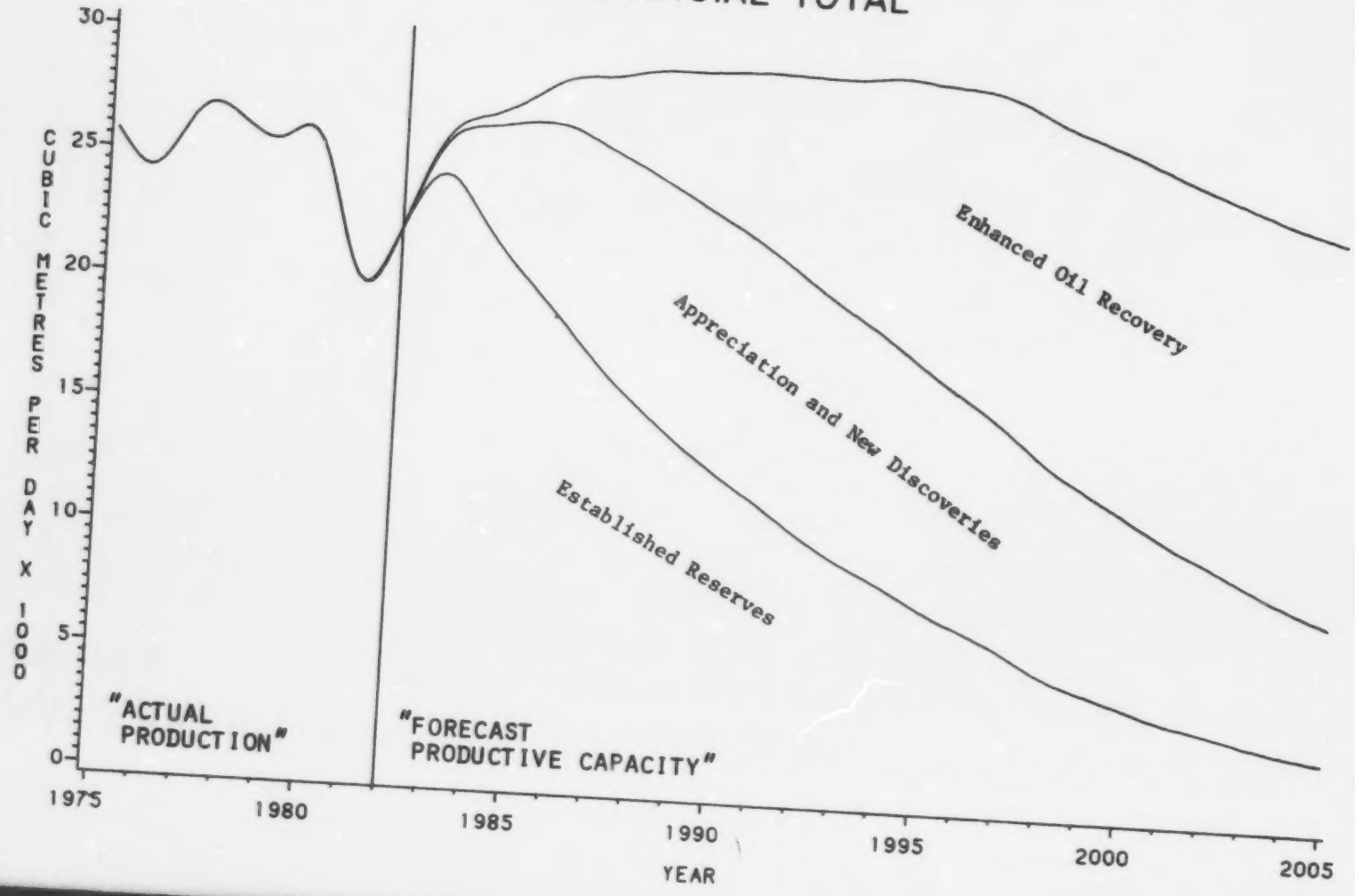


FIGURE X

# SASKATCHEWAN CRUDE OIL ESTABLISHED RESERVES AND FORECAST RESERVES ADDITIONS

*** (Millions of Cubic Metres) ***

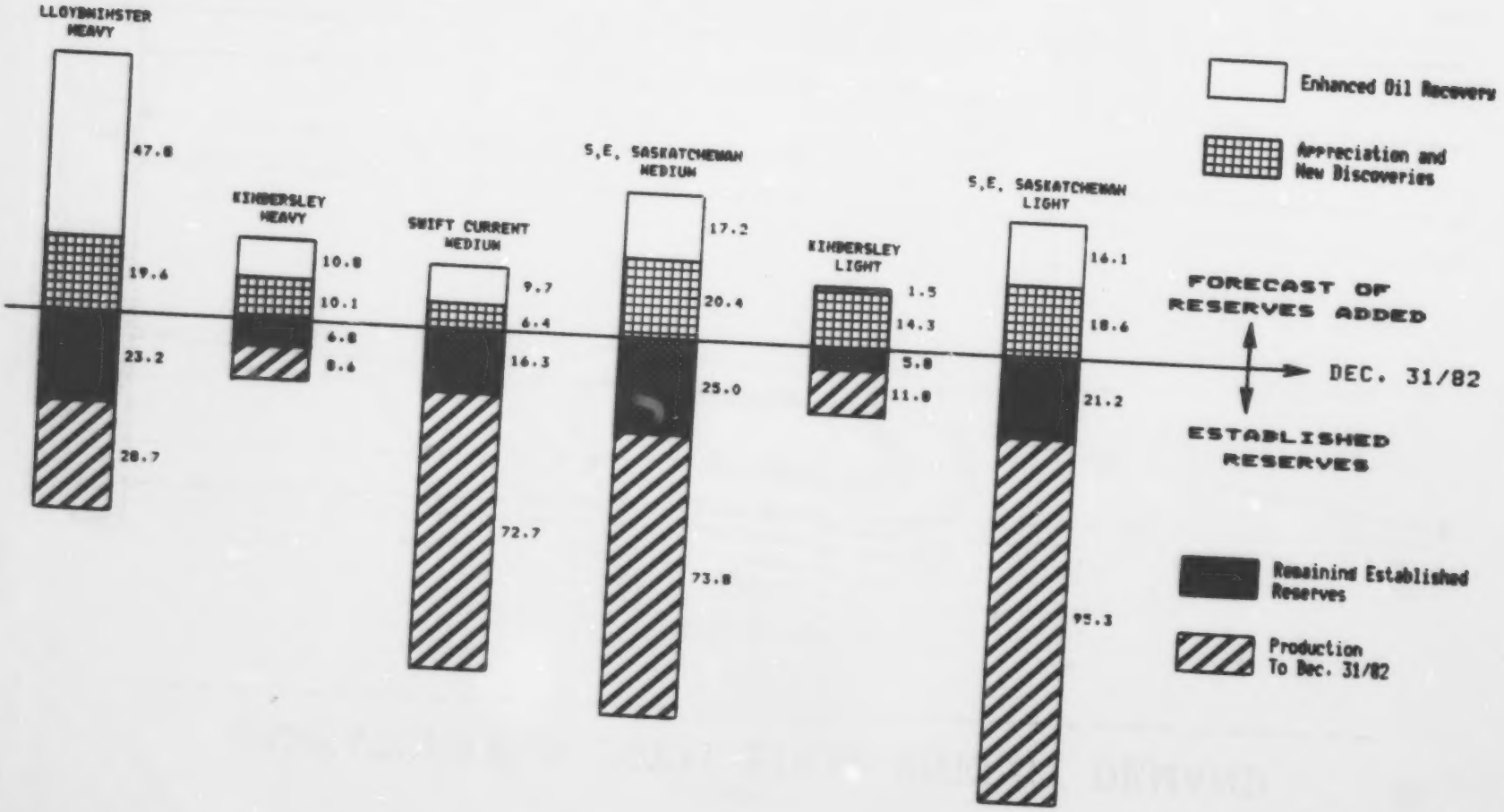
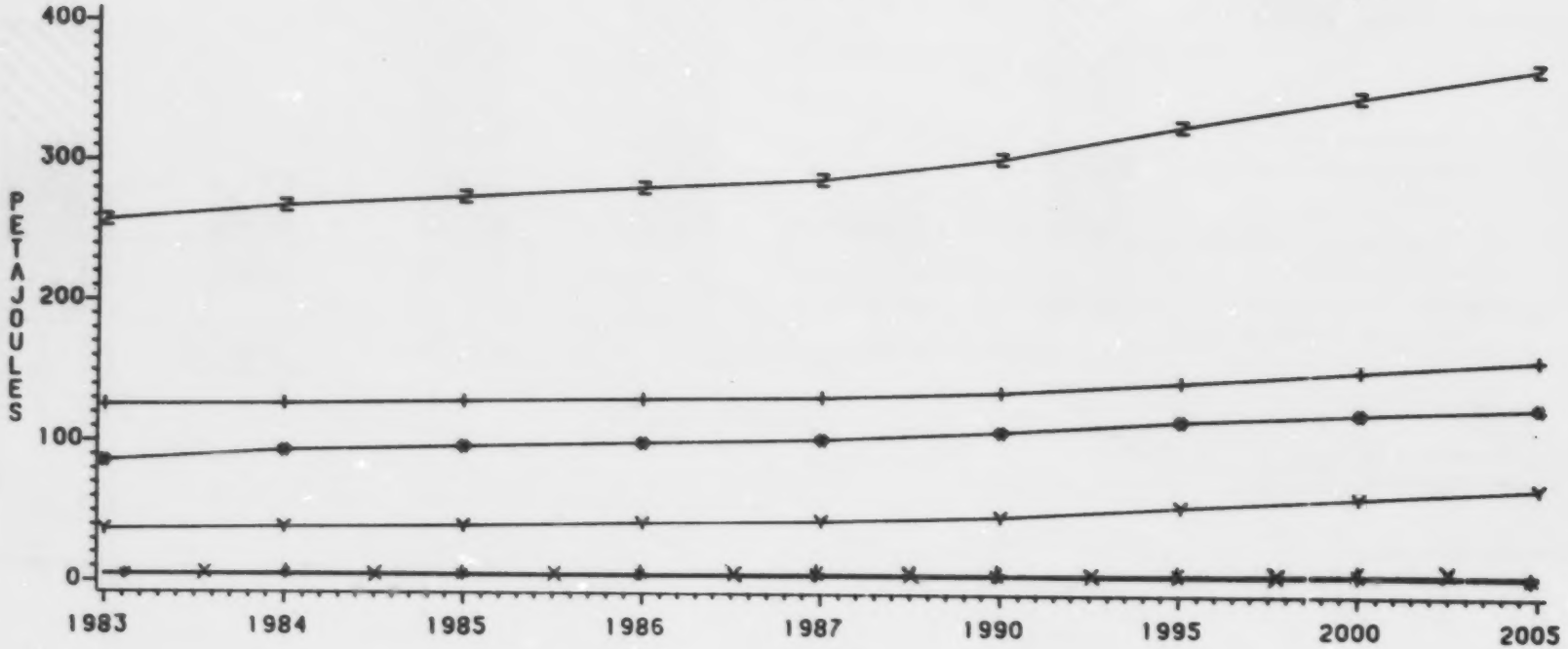


FIGURE XI

# SASKATCHEWAN TOTAL FINAL ENERGY DEMAND

1983 TO 2005

(CASE A)




LEGEND

+ = OIL
• = LPG
# = NATURAL GAS
X = COAL
Y = HYDRO
Z = TOTAL

FIGURE XII

# SASKATCHEWAN TOTAL FINAL ENERGY DEMAND

1983 TO 2005

(CASE B)

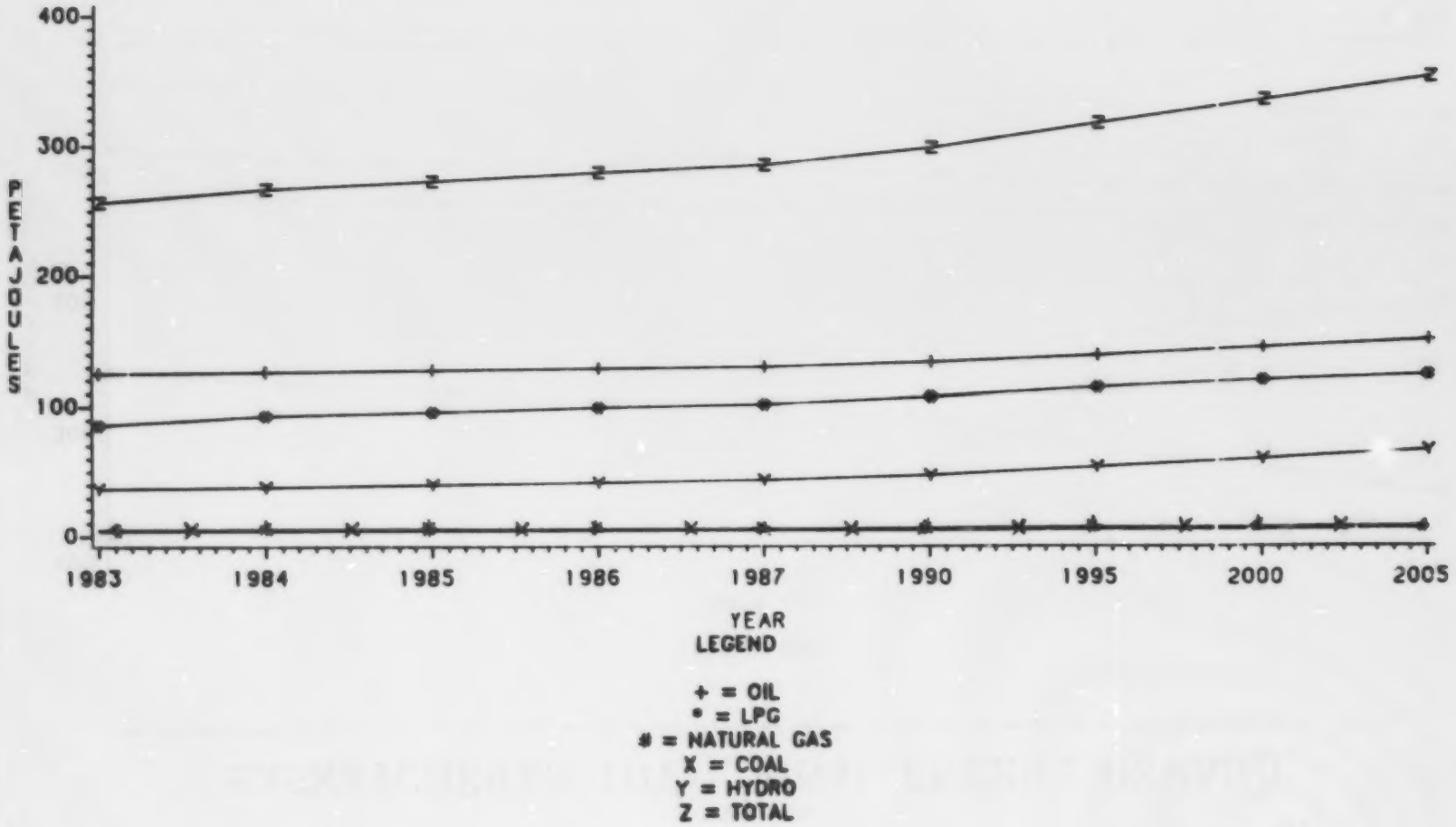


FIGURE XIII

# SASKATCHEWAN TOTAL FINAL ENERGY DEMAND

1983 TO 2005

(CASE C)

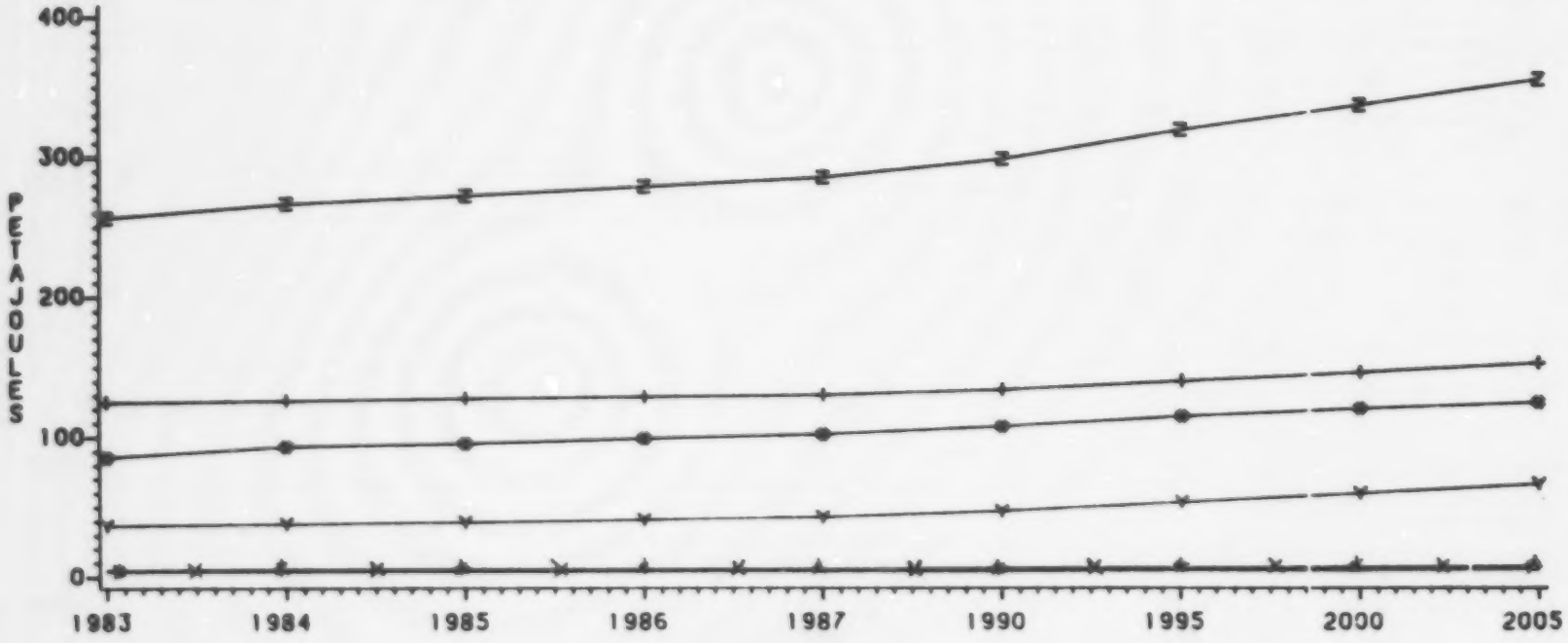
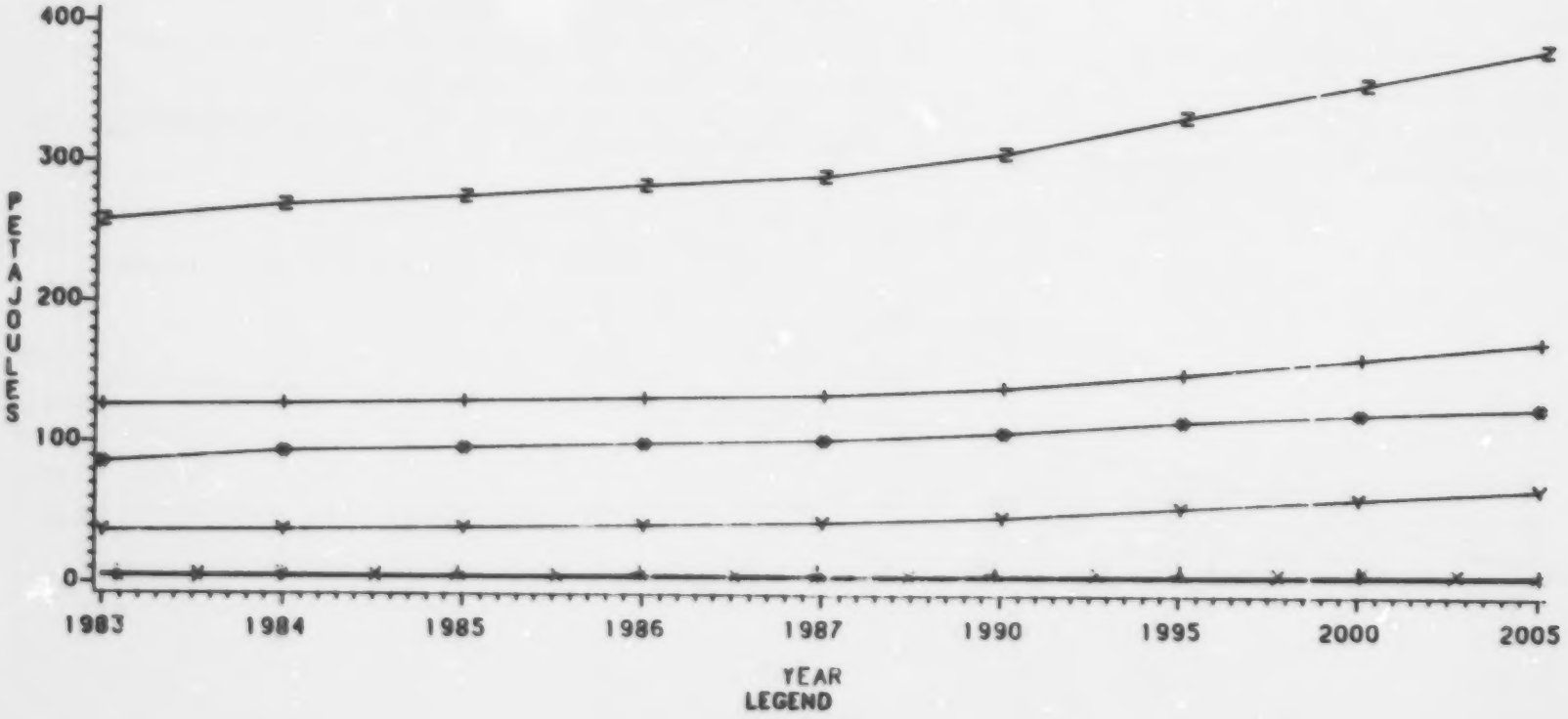


FIGURE XIV

# SASKATCHEWAN TOTAL FINAL ENERGY DEMAND

1983 TO 2005

(CASE D)




LEGEND

+ = OIL
• = LPG
# = NATURAL GAS
X = COAL
Y = HYDRO
Z = TOTAL

FIGURE XV

# SASKATCHEWAN SECONDARY ENERGY DEMAND

1983 TO 2005

(CASE A)

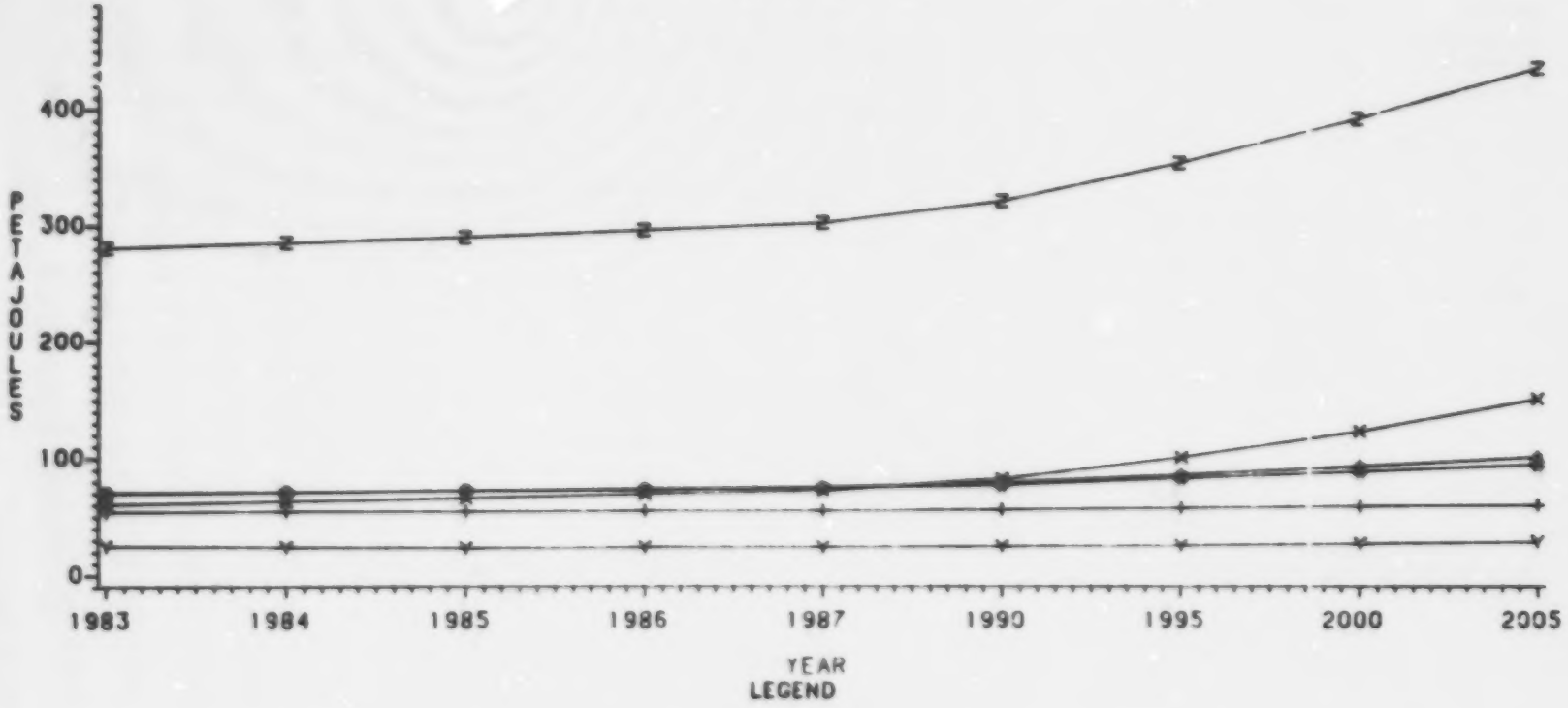


FIGURE XVI

# SASKATCHEWAN SECONDARY ENERGY DEMAND

1983 TO 2005

(CASE B)

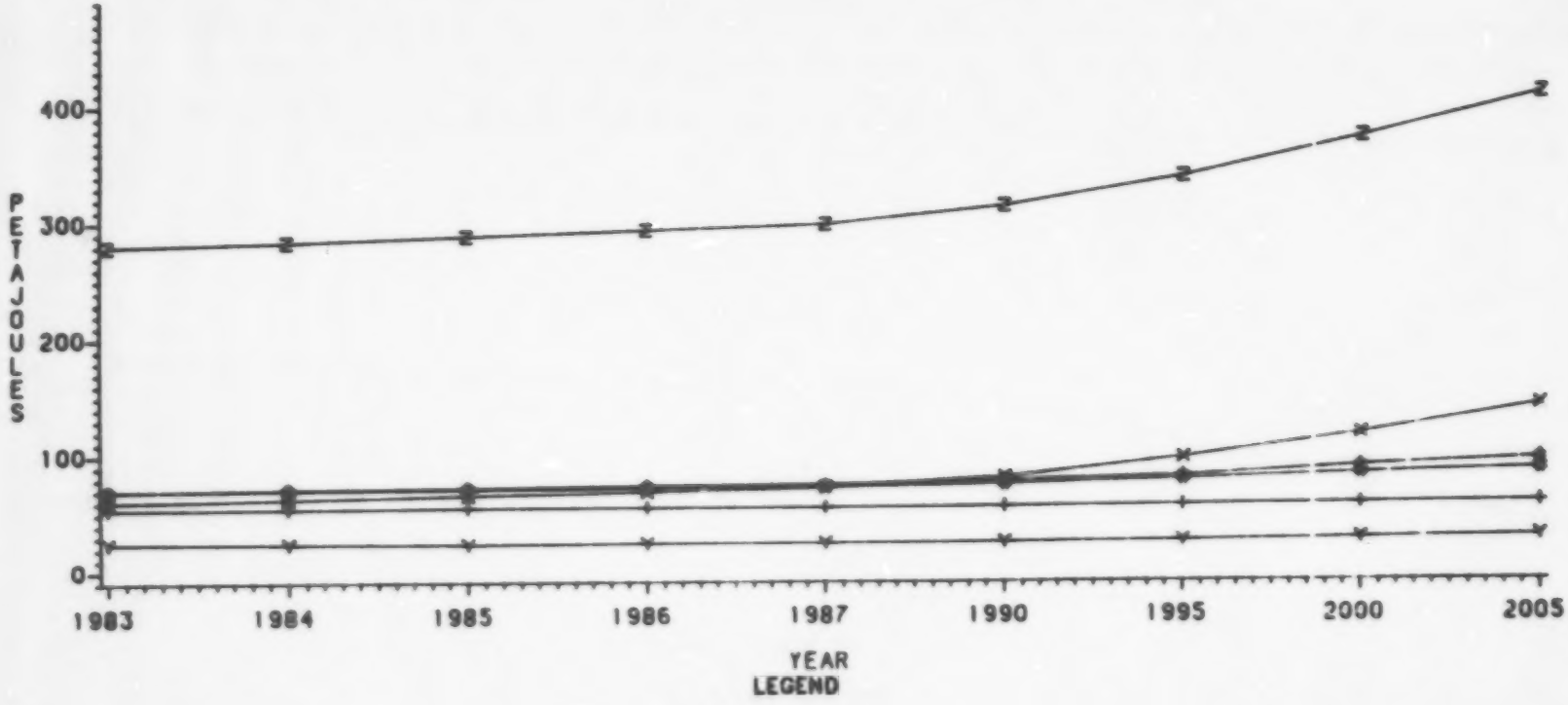
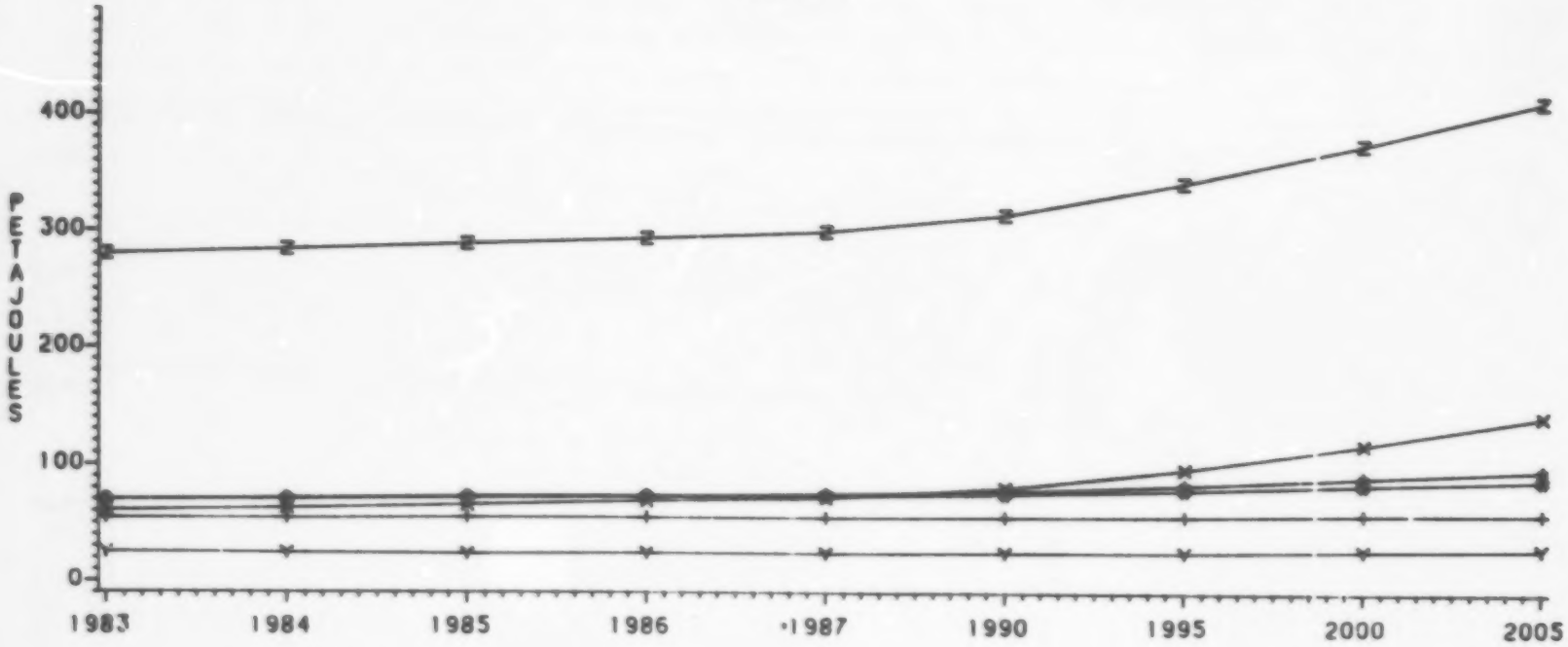


FIGURE XVII

# SASKATCHEWAN SECONDARY ENERGY DEMAND

1983 TO 2005

(CASE C)




LEGEND

\+ = RESIDENTIAL
* = COMMERCIAL
X = INDUSTRIAL
\# = TRANSPORTATION
Y = AGRICULTURE
Z = TOTAL

FIGURE XVIII

# SASKATCHEWAN SECONDARY ENERGY DEMAND

1983 TO 2005

(CASE D)

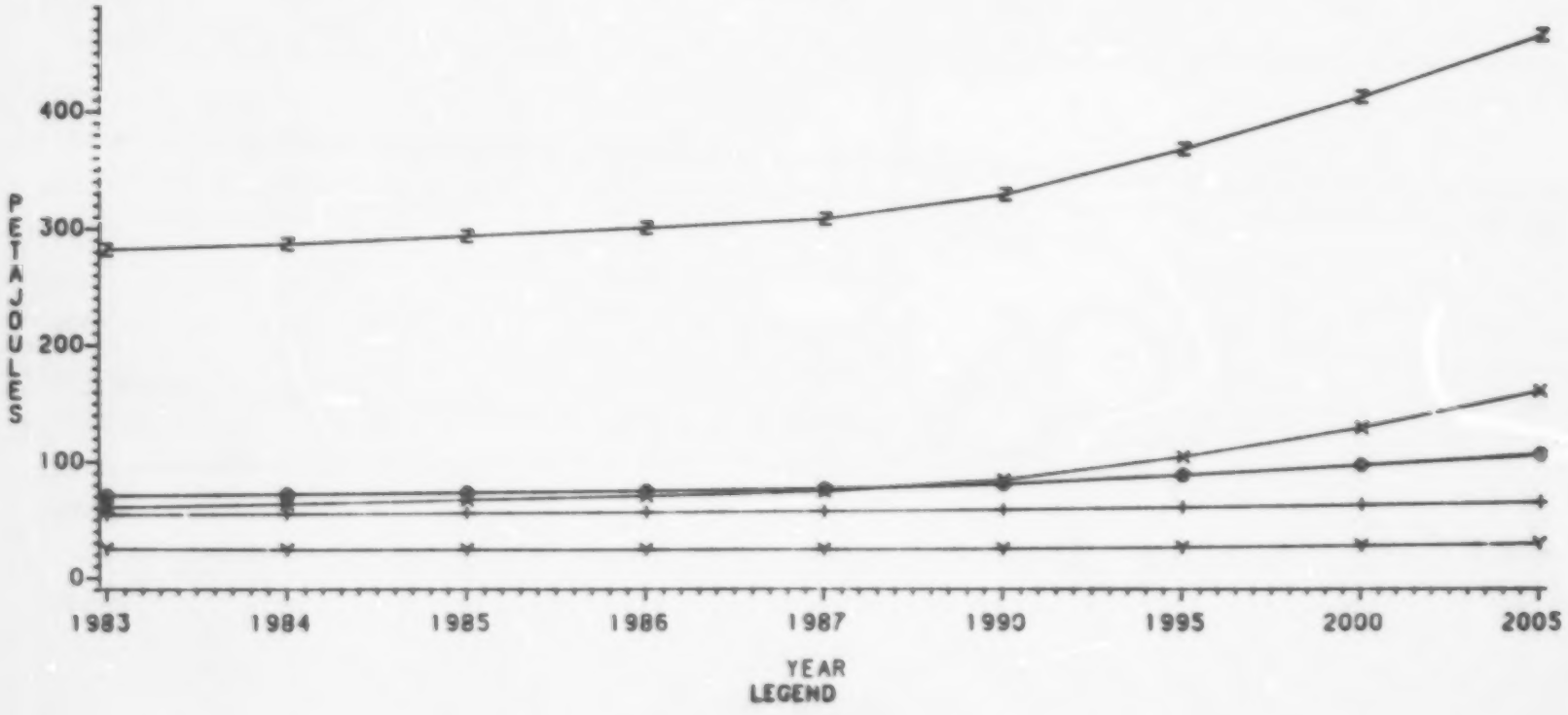


FIGURE XIX

# SASKATCHEWAN PRIMARY ENERGY DEMAND

1983 TO 2005

(CASE A)

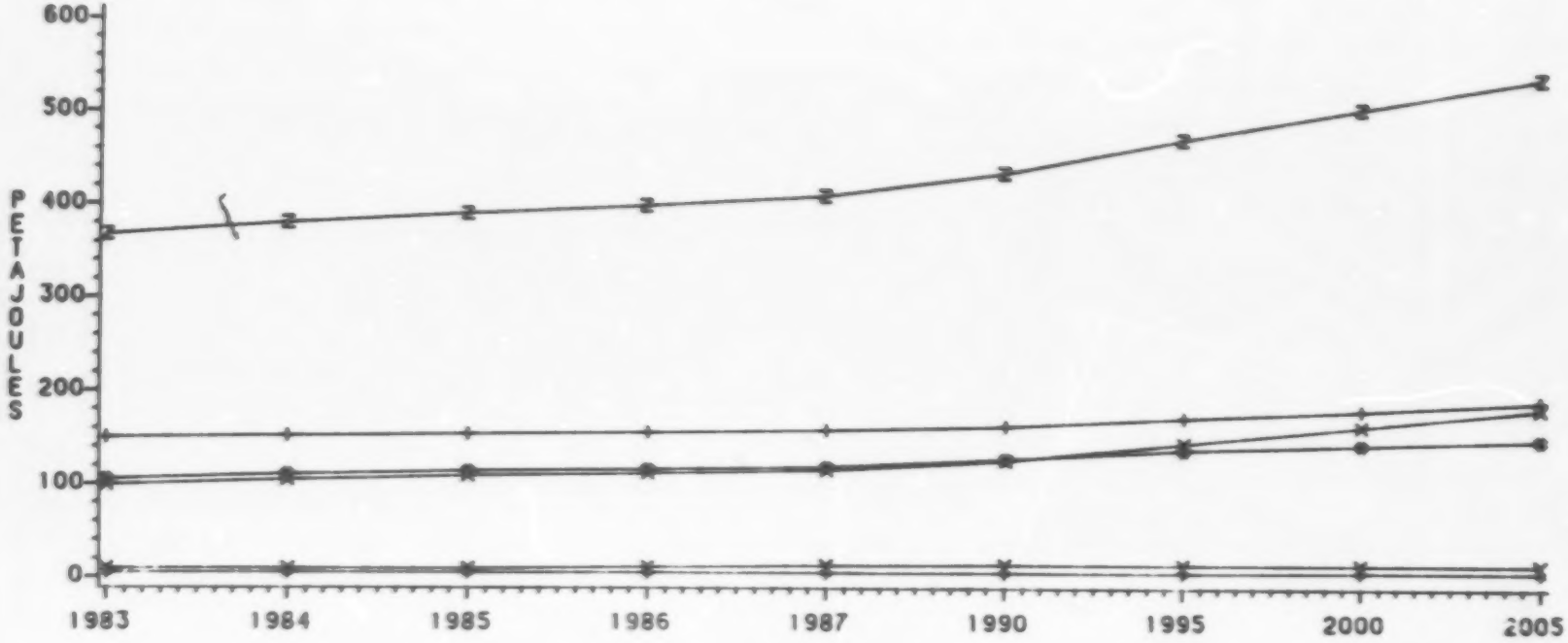
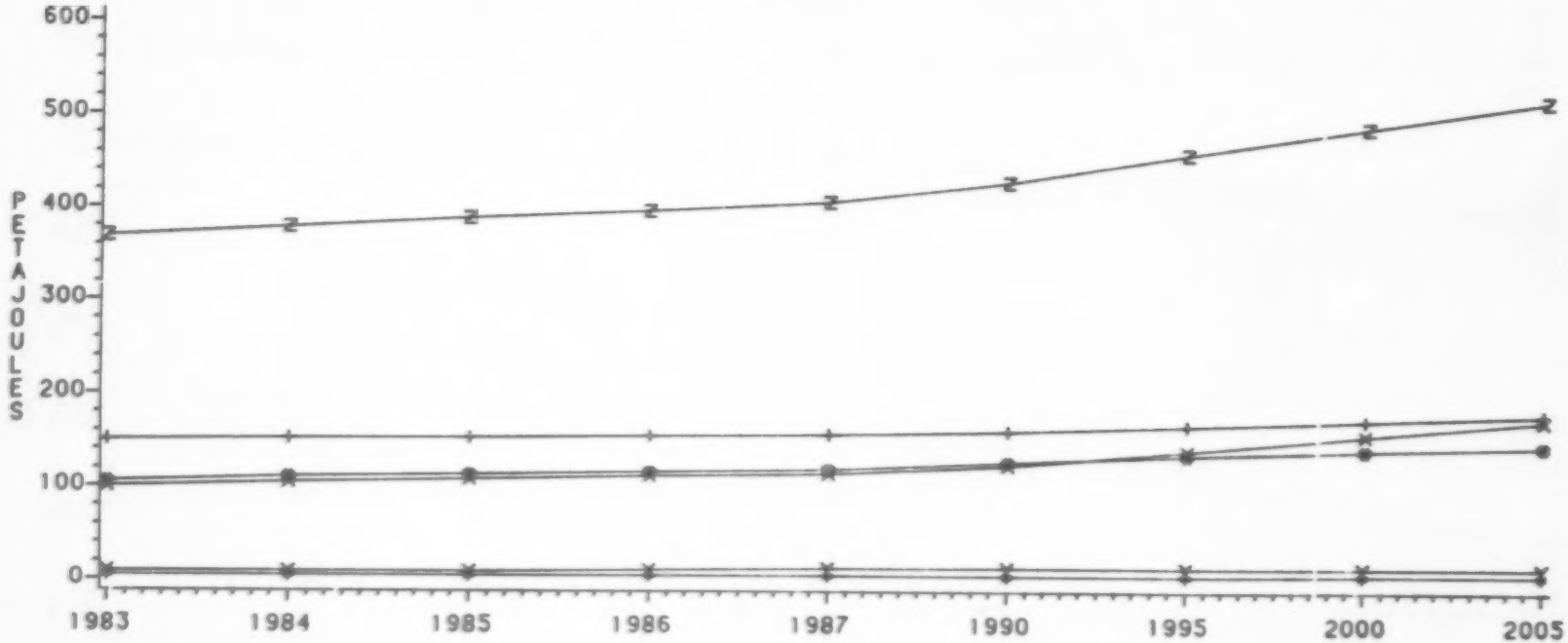


FIGURE XX

# SASKATCHEWAN PRIMARY ENERGY DEMAND

1983 TO 2005

(CASE B)




LEGEND

+ = OIL
• = LPG
X = COAL
# = NATURAL GAS
Y = HYDRO
Z = TOTAL

FIGURE XXI

# SASKATCHEWAN PRIMARY ENERGY DEMAND

1983 TO 2005

(CASE C)

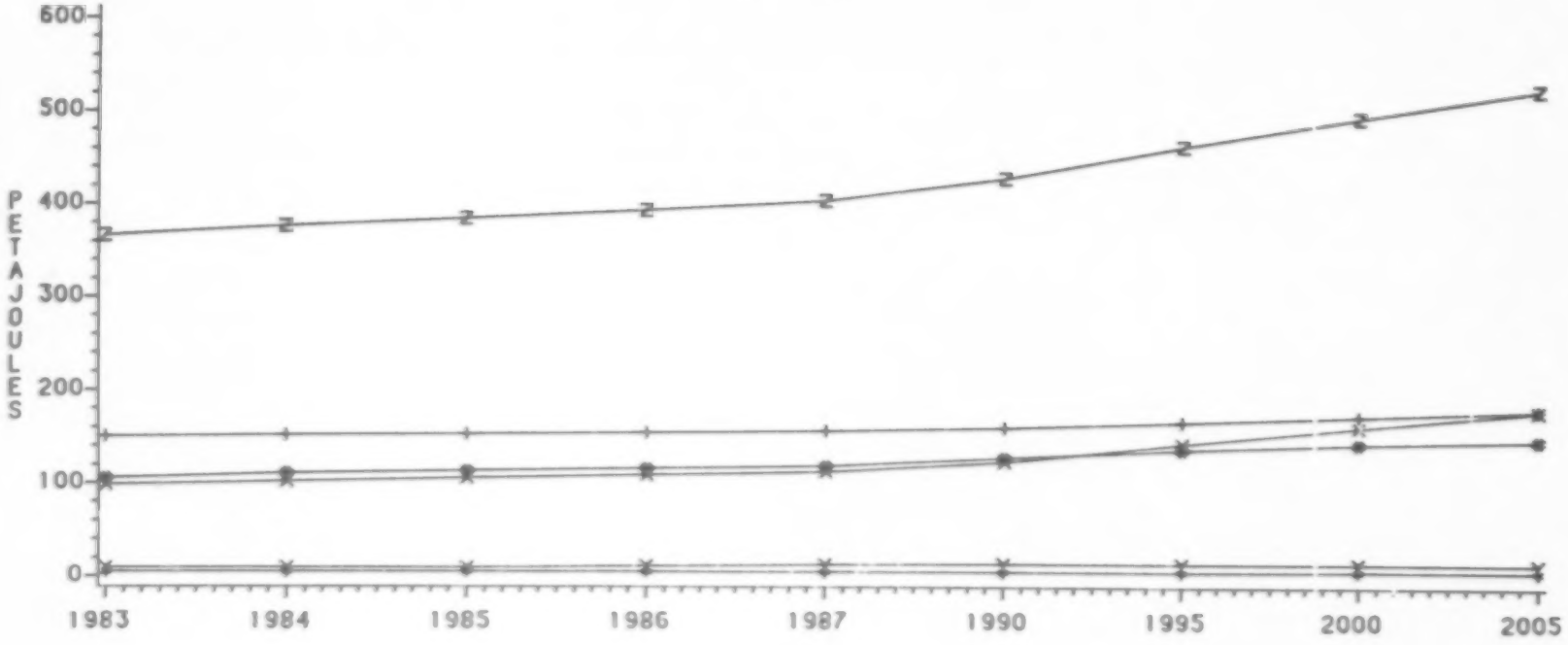
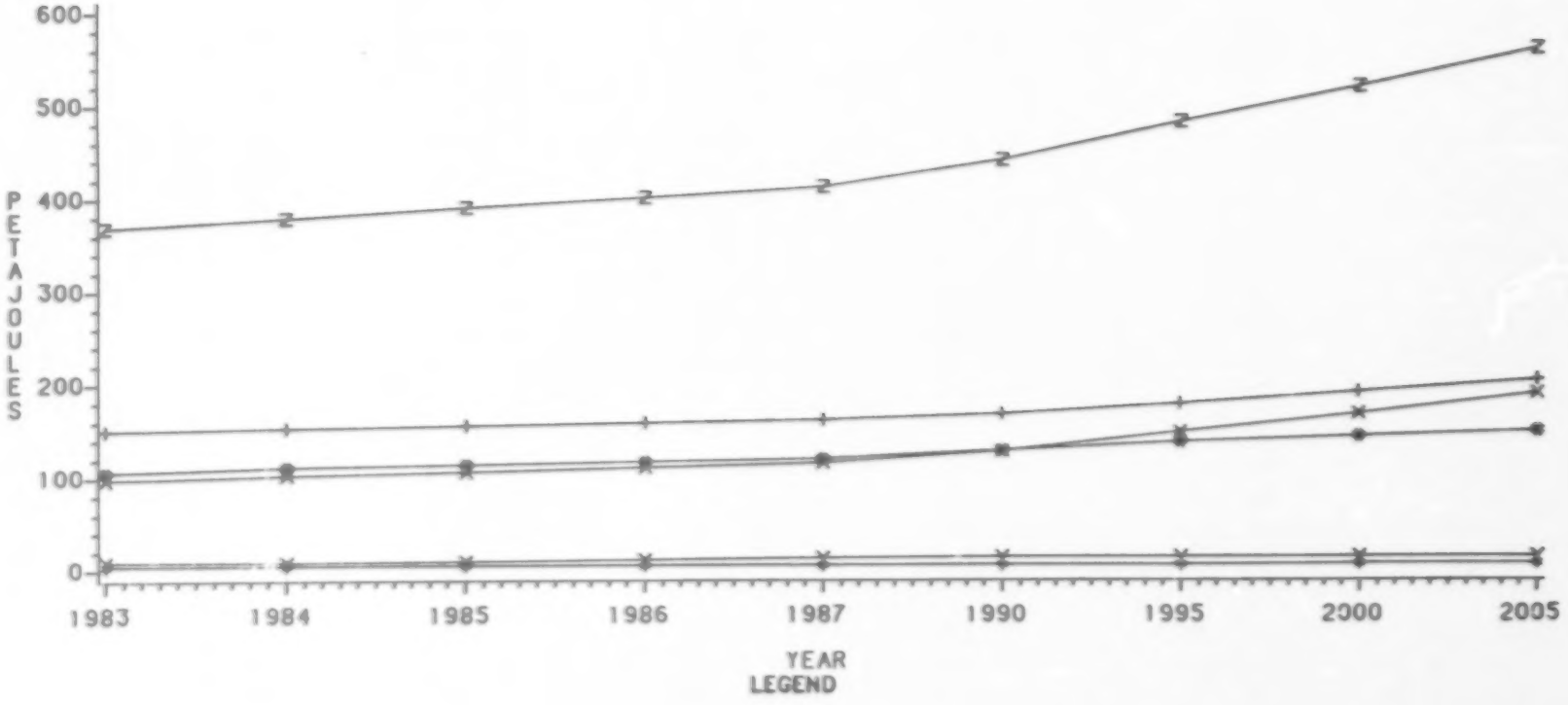


FIGURE XXII

# SASKATCHEWAN PRIMARY ENERGY DEMAND

1983 TO 2005

(CASE D)



# SASKATCHEWAN
# FORECAST OF NORP CRUDE OIL WELLHEAD PRICES

| YEAR | LLOYDMINSTER HEAVY | KINDERSLEY HEAVY | SWIFT CURRENT MEDIUM | S.E. SASKATCHEWAN MEDIUM | KINDERSLEY LIGHT | S.E. SASKATCHEWAN LIGHT |
|---|---|---|---|---|---|---|
| | (Dollars Per Cubic Metre) | | | | | |
| 1983 | 190.66 | 194.68 | 207.58 | 228.16 | 259.37 | 245.02 |
| 1984 | 182.04 | 181.47 | 198.52 | 227.15 | 240.87 | 239.93 |
| 1985 | 187.26 | 186.63 | 204.12 | 233.76 | 247.98 | 247.04 |
| 1986 | 197.77 | 197.14 | 215.45 | 246.60 | 261.82 | 260.88 |
| 1987 | 209.91 | 209.28 | 228.47 | 261.57 | 277.87 | 276.86 |
| 1988 | 222.87 | 222.25 | 242.38 | 277.43 | 294.86 | 293.79 |
| 1989 | 236.59 | 236.03 | 257.17 | 294.29 | 312.85 | 311.78 |
| 1990 | 251.19 | 250.62 | 272.84 | 312.16 | 331.98 | 330.85 |
| 1991 | 266.73 | 266.17 | 289.51 | 331.10 | 352.24 | 351.11 |
| 1992 | 283.28 | 282.65 | 307.25 | 351.24 | 373.83 | 372.63 |
| 1993 | 300.77 | 300.21 | 326.07 | 372.63 | 396.67 | 395.47 |
| 1994 | 319.40 | 318.77 | 346.02 | 395.35 | 420.89 | 419.64 |
| 1995 | 339.16 | 338.59 | 367.22 | 419.45 | 446.63 | 445.37 |
| 1996 | 360.17 | 359.61 | 389.81 | 444.99 | 473.88 | 472.62 |
| 1997 | 382.51 | 381.88 | 413.72 | 472.11 | 502.82 | 501.50 |
| 1998 | 406.17 | 405.54 | 439.08 | 500.93 | 533.59 | 532.14 |
| 1999 | 431.28 | 430.71 | 466.07 | 531.45 | 566.12 | 564.67 |
| 2000 | 457.96 | 457.39 | 494.70 | 563.86 | 600.73 | 599.22 |
| 2001 | 486.27 | 485.70 | 525.09 | 598.27 | 637.35 | 635.84 |
| 2002 | 516.41 | 515.85 | 557.37 | 634.77 | 676.24 | 674.60 |
| 2003 | 548.44 | 547.81 | 591.60 | 673.47 | 717.45 | 715.75 |
| 2004 | 582.29 | 581.73 | 627.85 | 714.49 | 761.31 | 759.48 |
| 2005 | 618.35 | 617.72 | 666.36 | 758.10 | 807.87 | 805.92 |
| **AVERAGE QUALITY** | | | | | | |
| Density (kg/m3) | 969.00 | 970.20 | 923.90 | 884.00 | 842.20 | 843.70 |
| Sulphur (g/kg) | 35.10 | 32.80 | 30.00 | 21.20 | 2.20 | 12.20 |

# PRODUCER NETBACKS FROM OIL PRODUCED ON CROWN LANDS BEFORE CORPORATE INCOME TAX

*** PRODUCTION RATE OF 80 CUBIC METRES PER MONTH ***

| YEAR | CRUDE OIL PRICE | PRODUCTION COST | NET OPERATING REVENUE | PETROLEUM AND GAS REVENUE TAX | NETBACK BEFORE ROYALTY | CROWN ROYALTY | NETBACK AFTER ROYALTY |
|---|---|---|---|---|---|---|---|
| | (Dollars Per Cubic Metre) | | | | | | |
| **LLOYDMINSTER HEAVY** | | | | | | | |
| 1984 | 182.04 | 37.72 | 144.32 | 17.32 | 127.00 | 46.97 | 80.04 |
| 1985 | 187.26 | 39.98 | 147.28 | 17.67 | 129.61 | 48.31 | 81.29 |
| 1986 | 197.77 | 42.38 | 155.39 | 18.65 | 136.74 | 51.02 | 85.72 |
| 1987 | 209.91 | 44.92 | 164.99 | 19.80 | 145.19 | 54.16 | 91.03 |
| 1990 | 251.19 | 53.50 | 197.69 | 23.72 | 173.96 | 64.81 | 109.16 |
| 1995 | 339.16 | 71.60 | 267.56 | 32.11 | 235.45 | 87.50 | 147.95 |
| 2000 | 457.96 | 95.82 | 362.14 | 43.46 | 318.69 | 118.15 | 200.53 |
| 2005 | 618.35 | 128.23 | 490.12 | 58.81 | 431.31 | 159.53 | 271.78 |
| **SWIFT CURRENT MEDIUM** | | | | | | | |
| 1984 | 198.52 | 30.67 | 167.85 | 20.14 | 147.71 | 59.56 | 88.15 |
| 1985 | 204.12 | 32.51 | 171.61 | 20.59 | 151.02 | 61.24 | 89.78 |
| 1986 | 215.45 | 34.46 | 180.99 | 21.72 | 159.27 | 64.63 | 94.64 |
| 1987 | 228.47 | 36.53 | 191.94 | 23.03 | 168.91 | 68.54 | 100.37 |
| 1990 | 272.84 | 43.50 | 229.34 | 27.52 | 201.82 | 81.85 | 119.97 |
| 1995 | 367.22 | 58.22 | 309.00 | 37.08 | 271.92 | 110.17 | 161.76 |
| 2000 | 494.70 | 77.91 | 416.79 | 50.02 | 366.78 | 148.41 | 218.37 |
| 2005 | 666.36 | 104.26 | 562.10 | 67.45 | 494.65 | 199.91 | 294.74 |
| **S.E. SASKATCHEWAN LIGHT** | | | | | | | |
| 1984 | 239.93 | 33.20 | 206.73 | 24.81 | 181.92 | 71.98 | 109.94 |
| 1985 | 247.04 | 35.20 | 211.84 | 25.42 | 186.42 | 74.11 | 112.31 |
| 1986 | 260.88 | 37.31 | 223.57 | 26.83 | 196.74 | 78.26 | 118.48 |
| 1987 | 276.86 | 39.55 | 237.31 | 28.48 | 208.84 | 83.06 | 125.78 |
| 1990 | 330.85 | 47.10 | 283.75 | 34.05 | 249.70 | 99.25 | 150.45 |
| 1995 | 445.37 | 63.03 | 382.34 | 45.88 | 336.46 | 133.61 | 202.85 |
| 2000 | 599.22 | 84.35 | 514.87 | 61.78 | 453.09 | 179.77 | 273.32 |
| 2005 | 805.93 | 112.88 | 693.05 | 83.17 | 609.89 | 241.78 | 368.11 |

# PRODUCER NETBACKS FROM OIL PRODUCED ON CROWN LANDS BEFORE CORPORATE INCOME TAX

*** JANUARY 1984 ***

| CRUDE OIL PRODUCTION RATE (Cubic Metres Per Month) | CRUDE OIL PRICE | PRODUCTION COST | NET OPERATING REVENUE | PETROLEUM AND GAS REVENUE TAX | NETBACK BEFORE ROYALTY | CROWN ROYALTY | NETBACK AFTER ROYALTY |
|---|---|---|---|---|---|---|---|
| | (Dollars Per Cubic Metre) | | | | | | |
| **LLOYDMINSTER HEAVY** | | | | | | | |
| 25 | 182.04 | 98.49 | 83.55 | 10.03 | 73.52 | 18.69 | 54.83 |
| 50 | 182.04 | 53.49 | 128.55 | 15.43 | 113.12 | 36.63 | 76.49 |
| 80 | 182.04 | 36.62 | 145.42 | 17.45 | 127.97 | 46.97 | 81.00 |
| 100 | 182.04 | 30.99 | 151.05 | 18.13 | 132.92 | 50.41 | 82.51 |
| 150 | 182.04 | 23.49 | 158.55 | 19.03 | 139.52 | 55.00 | 84.52 |
| 200 | 182.04 | 19.74 | 162.30 | 19.48 | 142.82 | 57.30 | 85.52 |
| 500 | 182.04 | 12.99 | 169.05 | 20.29 | 148.76 | 61.43 | 87.33 |
| **SWIFT CURRENT MEDIUM** | | | | | | | |
| 25 | 198.52 | 66.90 | 131.62 | 15.79 | 115.83 | 23. | 92.12 |
| 50 | 198.52 | 39.90 | 158.62 | 19.03 | 139.59 | 46. | 93.13 |
| 80 | 198.52 | 29.77 | 168.75 | 20.25 | 148.50 | 59.56 | 88.94 |
| 100 | 198.52 | 26.40 | 172.12 | 20.65 | 151.47 | 63.92 | 87.54 |
| 150 | 198.52 | 21.90 | 176.62 | 21.19 | 155.43 | 69.75 | 85.68 |
| 200 | 198.52 | 19.65 | 178.87 | 21.46 | 157.41 | 72.66 | 84.75 |
| 500 | 198.52 | 15.60 | 182.92 | 21.95 | 160.97 | 77.90 | 83.07 |
| **S.E. SASKATCHEWAN LIGHT** | | | | | | | |
| 25 | 239.93 | 87.24 | 152.69 | 18.32 | 134.37 | 28.65 | 105.72 |
| 50 | 239.93 | 47.24 | 192.69 | 23.12 | 169.57 | 56.14 | 113.43 |
| 80 | 239.93 | 32.24 | 207.69 | 24.92 | 182.77 | 71.98 | 110.79 |
| 100 | 239.93 | 27.24 | 212.69 | 25.52 | 187.17 | 77.26 | 109.91 |
| 150 | 239.93 | 20.57 | 219.36 | 26.32 | 193.04 | 84.30 | 108.74 |
| 200 | 239.93 | 17.24 | 222.69 | 26.72 | 195.97 | 87.81 | 108.16 |
| 500 | 239.93 | 11.24 | 228.69 | 27.44 | 201.25 | 94.15 | 107.10 |

# APPENDIX IV

## PIPELINE SYSTEMS

I. HUSKY PIPELINES LTD. AND MANITO PIPELINES LTD. - HEAVY

II. BOW RIVER PIPE LINES LTD. AND CACTUS LAKE PIPELINE SYSTEM - HEAVY

III. SOUTH SASKATCHEWAN PIPE LINE COMPANY - MEDIUM

IV. WESTSPUR PIPE LINE COMPANY - MEDIUM

V. BOW RIVER PIPE LINES LTD. - LIGHT

VI. WESTSPUR PIPE LINE COMPANY - LIGHT

## I. HUSKY PIPELINES LTD. AND MANITO PIPELINES LTD. - HEAVY

| FIELD | POOL | UNIT |
|---|---|---|
| Aberfeldy | Sparky | Aberfeldy Unit |
| | Sparky | South Aberfeldy Unit |
| Dulwich | Sparky | Non-Unit |
| Epping | G.P. and Sparky | S. Epping Unit #1 |
| | Sparky | S.W. Unit |
| | G.P. | Non-Unit |
| | Sparky | Non-Unit |
| Furness | Sparky | Non-Unit |
| Golden Lake South | Sparky | Non-Unit |
| | Waseca | Non-Unit |
| Gully Lake | Waseca | Unit #1 |
| | Waseca | Non-Unit |
| Lone Rock | Sparky | Non-Unit |
| Macklin | Sparky | Non-Unit |
| Standard Hill | Waseca | Non-Unit |
| Tangleflags | G.P. Lloydminster, Sparky | Vol. Unit #1 and Non-Unit |
| | Lloydminster | Vol. Unit #2 |
| | McLaren, Sparky, Lloydminster, G.P. | Vol. Unit #3 |

Other - Husky Pipelines Ltd. and Manito Pipelines Ltd. - Heavy

Total - Husky Pipelines Ltd. and Manito Pipelines Ltd. - Heavy

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Aberfeldy
POOL: Sparky
UNIT: Aberfeldy Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 456 | |
| 1983 | 559 | |
| 1984 | 652 | |
| 1985 | 543 | |
| 1986 | 432 | |
| 1987 | 228 | |
| 1988 | 205 | |
| 1989 | 185 | |
| 1990 | 166 | |
| 1991 | 150 | |
| 1992 | 135 | |
| 1993 | 122 | |
| 1994 | 109 | |
| 1995 | 98 | |
| 1996 | 89 | |
| 1997 | 80 | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 4 047 |
| Average pay, m | 4.42 |
| Rock Volume, $10^4m^3$ | 17 888 |
| Porosity, % | 35.0 |
| Connate Water, % | 13.0 |
| Shrinkage, % | 98.3 |
| Initial oil in place, $10^6m^3$ | 53.484 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 5.3 |
| Improved Recovery, % | 5.5 |
| Improved Recovery Mechanism | * |
| Total Recoverable Oil, $10^6m^3$ | 5.777 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 4.465 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 1.312 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | |
| ___ | Waterflooding | ___ | |
| ___ | $CO_2$ | ___ | |
| ___ | Hydrocarbon | ___ | |
| ___ | Chemical Flooding | ___ | |
| ✓ | Thermal Techniques | ___ | |
| ___ | Other: | ___ | |
| ___ | No Potential | | |

Comments: * Waterflood, insitu wet combustion and steamflood projects.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Aberfeldy
POOL: Sparky
UNIT: South Aberfeldy Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 84 | |
| 1983 | 85 | |
| 1984 | 74 | |
| 1985 | 66 | |
| 1986 | 58 | |
| 1987 | 51 | |
| 1988 | 45 | |
| 1989 | 39 | |
| 1990 | 35 | |
| 1991 | 30 | |
| 1992 | 27 | |
| 1993 | 24 | |
| 1994 | 21 | |
| 1995 | 18 | |
| 1996 | 16 | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 522 |
| Average pay, m | 5.18 |
| Rock Volume, $10^4m^3$ | 7 884 |
| Porosity, % | 35.0 |
| Connate Water, % | 13.0 |
| Shrinkage, % | 98.3 |
| Initial oil in place, $10^6m^3$ | 23.573 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 4.8 |
| Improved Recovery, % | 1.8 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 1.556 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.354 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.202 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Dulwich
POOL: Sparky
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 83 | |
| 1983 | 85 | |
| 1984 | 80 | |
| 1985 | 75 | |
| 1986 | 70 | |
| 1987 | 66 | |
| 1988 | 62 | |
| 1989 | 58 | |
| 1990 | 55 | |
| 1991 | 52 | |
| 1992 | 49 | |
| 1993 | 46 | |
| 1994 | 43 | |
| 1995 | 41 | |
| 1996 | 38 | |
| 1997 | 36 | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 910 |
| Average pay, m | 3.11 |
| Rock Volume, $10^4m^3$ | 5 940 |
| Porosity, % | 34.0 |
| Connate Water, % | 15.0 |
| Shrinkage, % | 89.6 |
| Initial oil in place, $10^6m^3$ | 15.385 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 8.00 |
| Improved Recovery, % | 4.2 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 1.877 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.577 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.300 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Epping
POOL: GP & Sparky
UNIT: S. Epping Unit #1

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 165 | |
| 1983 | 158 | |
| 1984 | 142 | |
| 1985 | 128 | |
| 1986 | 115 | |
| 1987 | 104 | |
| 1988 | 93 | |
| 1989 | 84 | |
| 1990 | 76 | |
| 1991 | 68 | |
| 1992 | 61 | |
| 1993 | 55 | |
| 1994 | 49 | |
| 1995 | 44 | |
| 1996 | 40 | |
| 1997 | 36 | |
| 1998 | 32 | |
| 1999 | 29 | |
| 2000 | 26 | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | G.P. | Sparky |
|---|---|---|
| Area, ha | 1 473 | 1 651 |
| Average pay, m | 1.04 | 5.15 |
| Rock Volume, $10^4m^3$ | 1 532 | 8 503 |
| Porosity, % | 35.0 | 35.0 |
| Connate Water, % | 18.0 | 18.0 |
| Shrinkage, % | 98.0 | 98.0 |
| Initial oil in place, $10^6m^3$ | 4.305 | 23.892 |
| Hor. permeability, mD | | |
| Vert. permeability, mD | | |
| Pressure-Datum, m SS | | |
| Initial Pressure, kPa | | |
| Initial oil viscosity, mPa.s | | |
| Current pressure, kPa | | |
| Current oil viscosity, mPa.s | | |
| Primary Recovery, % | 3.0 | 5.0 |
| Improved Recovery, % | 1.4 | 6.0 |
| Improved Recovery Mechanism | Waterflood | |
| Total Recoverable Oil, $10^6m^3$ | 0.189 | 2.629 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 2.306 | |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.512 | |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Epping
POOL: Sparky
UNIT: S.W. Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 108 | |
| 1983 | 99 | |
| 1984 | 93 | |
| 1985 | 87 | |
| 1986 | 81 | |
| 1987 | 76 | |
| 1988 | 71 | |
| 1989 | 66 | |
| 1990 | 62 | |
| 1991 | 58 | |
| 1992 | 54 | |
| 1993 | 50 | |
| 1994 | 47 | |
| 1995 | 44 | |
| 1996 | 41 | |
| 1997 | 39 | |
| 1998 | 36 | |
| 1999 | 34 | |
| 2000 | 32 | |
| 2001 | 29 | |
| 2002 | 28 | |
| 2003 | 26 | |
| 2004 | 24 | |
| 2005 | 23 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 923 |
| Average pay, m | 4.15 |
| Rock Volume, $10^4 m^3$ | 3 830 |
| Porosity, % | 35.0 |
| Connate Water, % | 18.0 |
| Shrinkage, % | 98.0 |
| Initial oil in place, $10^6 m^3$ | 10.764 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 5.4 |
| Improved Recovery, % | 5.7 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6 m^3$ | 1.195 |
| Cumulative oil production to 1983-01-01, $10^6 m^3$ | 0.739 |
| Remaining Established Reserves at 1983-01-01, $10^6 m^3$ | 0.456 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6 m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Epping
POOL: G.P.
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 24 | |
| 1983 | 23 | |
| 1984 | 21 | |
| 1985 | 19 | |
| 1986 | 17 | |
| 1987 | 16 | |
| 1988 | 14 | |
| 1989 | 13 | |
| 1990 | 12 | |
| 1991 | 11 | |
| 1992 | 10 | |
| 1993 | 9 | |
| 1994 | 8 | |
| 1995 | 7 | |
| 1996 | 7 | |
| 1997 | 6 | |
| 1998 | 6 | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 198 |
| Average pay, m | 3.60 |
| Rock Volume, $10^4m^3$ | 4 313 |
| Porosity, % | 35.0 |
| Connate Water, % | 18.0 |
| Shrinkage, % | 98.0 |
| Initial oil in place, $10^6m^3$ | 12.119 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 3.6 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 0.436 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.351 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.085 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | |
| ___ | Waterflooding | ___ | |
| ___ | $CO_2$ | ___ | |
| ___ | Hydrocarbon | ___ | |
| ___ | Chemical Flooding | ___ | |
| ___ | Thermal Techniques | ___ | |
| ___ | Other: ___ | ___ | |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Epping
POOL: Sparky
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 129 | |
| 1983 | 128 | |
| 1984 | 115 | |
| 1985 | 104 | |
| 1986 | 94 | |
| 1987 | 84 | |
| 1988 | 76 | |
| 1989 | 68 | |
| 1990 | 61 | |
| 1991 | 55 | |
| 1992 | 50 | |
| 1993 | 45 | |
| 1994 | 40 | |
| 1995 | | |
| 1996 | | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 558 |
| Average pay, m | 4.60 |
| Rock Volume, $10^4m^3$ | 11 767 |
| Porosity, % | 35.0 |
| Connate Water, % | 18.0 |
| Shrinkage, % | 98.0 |
| Initial oil in place, $10^6m^3$ | 33.065 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 5.3 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 1.752 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.404 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.348 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ____ | _____ |
| ___ | Waterflooding | ____ | _____ |
| ___ | $CO_2$ | ____ | _____ |
| ___ | Hydrocarbon | ____ | _____ |
| ___ | Chemical Flooding | ____ | _____ |
| ___ | Thermal Techniques | ____ | _____ |
| ___ | Other: _____ | ____ | _____ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Furness
POOL: Sparky
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 44 | |
| 1983 | 43 | |
| 1984 | 39 | |
| 1985 | 35 | |
| 1986 | 32 | |
| 1987 | 29 | |
| 1988 | 27 | |
| 1989 | 24 | |
| 1990 | 22 | |
| 1991 | 20 | |
| 1992 | 18 | |
| 1993 | 16 | |
| 1994 | 15 | |
| 1995 | 14 | |
| 1996 | | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 534 |
| Average pay, m | 5.75 |
| Rock Volume, $10^4m^3$ | 3 071 |
| Porosity, % | 34.0 |
| Connate Water, % | 15.0 |
| Shrinkage, % | 98.3 |
| Initial oil in place, $10^6m^3$ | 8.720 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 5.1 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 0.445 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.325 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.120 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Golden Lake North
POOL: Sparky & Waseca
UNIT: Vol. Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 152 | |
| 1983 | 135 | |
| 1984 | 121 | |
| 1985 | 107 | |
| 1986 | 95 | |
| 1987 | 85 | |
| 1988 | 76 | |
| 1989 | 67 | |
| 1990 | 60 | |
| 1991 | 53 | |
| 1992 | 47 | |
| 1993 | 42 | |
| 1994 | 37 | |
| 1995 | 33 | |
| 1996 | 30 | |
| 1997 | 26 | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | Sparky | Waseca |
|---|---|---|
| Area, ha | 890 | 1 198 |
| Average pay, m | 3.75 | 4.11 |
| Rock Volume, $10^4m^3$ | 3 338 | 4 924 |
| Porosity, % | 35.0 | 35.0 |
| Connate Water, % | 20.0 | 16.0 |
| Shrinkage, % | 99.0 | 98.5 |
| Initial oil in place, $10^6m^3$ | 9.245 | 14.279 |
| Hor. permeability, mD | | |
| Vert. permeability, mD | | |
| Pressure-Datum, m SS | | |
| Initial Pressure, kPa | | |
| Initial oil viscosity, mPa.s | | |
| Current pressure, kPa | | |
| Current oil viscosity, mPa.s | | |
| Primary Recovery, % | 3.0 | 6.0 |
| Improved Recovery, % | 0.8 | 3.6 |
| Improved Recovery Mechanism | Waterflood | |
| Total Recoverable Oil, $10^6m^3$ | 0.351 | 1.371 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.349 | |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.373 | |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ | Comments: |
|---|---|---|---|---|
| | Infill Drilling | | | |
| | Waterflooding | | | |
| | $CO_2$ | | | |
| | Hydrocarbon | | | |
| | Chemical Flooding | | | |
| ✓ | Thermal Techniques | | | |
| | Other: | | | |
| | No Potential | | | |

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Golden Lake North
POOL: Sparky & Waseca
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 78 | |
| 1983 | 69 | |
| 1984 | 60 | |
| 1985 | 53 | |
| 1986 | 47 | |
| 1987 | 41 | |
| 1988 | 36 | |
| 1989 | 32 | |
| 1990 | 28 | |
| 1991 | 25 | |
| 1992 | 22 | |
| 1993 | 19 | |
| 1994 | 17 | |
| 1995 | 15 | |
| 1996 | 13 | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | Sparky | Waseca |
|---|---|---|
| Area, ha | 308 | 502 |
| Average pay, m | 4.20 | 4.00 |
| Rock Volume, $10^4m^3$ | 1 294 | 2 000 |
| Porosity, % | 35.0 | 35.0 |
| Connate Water, % | 20.0 | 16.0 |
| Shrinkage, % | 99.0 | 98.5 |
| Initial oil in place, $10^6m^3$ | 3.583 | 5.623 |
| Hor. permeability, mD | | |
| Vert. permeability, mD | | |
| Pressure-Datum, m SS | | |
| Initial Pressure, kPa | | |
| Initial oil viscosity, mPa.s | | |
| Current pressure, kPa | | |
| Current oil viscosity, mPa.s | | |
| Primary Recovery, % | 3.7 | 5.9 |
| Improved Recovery, % | 0.0 | 1.0 |
| Improved Recovery Mechanism | -- | |
| Total Recoverable Oil, $10^6m^3$ | 0.133 | 0.402 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.071 | 0.284 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.062 | 0.118 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Golden Lake South
POOL: Sparky
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 125 | |
| 1983 | 179 | |
| 1984 | 162 | |
| 1985 | 145 | |
| 1986 | 131 | |
| 1987 | 118 | |
| 1988 | 106 | |
| 1989 | 95 | |
| 1990 | 86 | |
| 1991 | 77 | |
| 1992 | 70 | |
| 1993 | 63 | |
| 1994 | 57 | |
| 1995 | 51 | |
| 1996 | | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 854 |
| Average pay, m | 6.50 |
| Rock Volume, $10^4m^3$ | 5 551 |
| Porosity, % | 35.0 |
| Connate Water, % | 18.0 |
| Shrinkage, % | 98.8 |
| Initial oil in place, $10^6m^3$ | 15.765 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 3.5 |
| Improved Recovery, % | 2.5 |
| Improved Recovery Mechanism | * |
| Total Recoverable Oil, $10^6m^3$ | 0.946 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.454 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.492 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ✓ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments: *Pilot insitu wet combustion projects.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Golden Lake South
POOL: Waseca
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 261 | |
| 1983 | 330 | |
| 1984 | 285 | |
| 1985 | 245 | |
| 1986 | 210 | |
| 1987 | 181 | |
| 1988 | 156 | |
| 1989 | 134 | |
| 1990 | 115 | |
| 1991 | 99 | |
| 1992 | 85 | |
| 1993 | 73 | |
| 1994 | 63 | |
| 1995 | 54 | |
| 1996 | 46 | |
| 1997 | 40 | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 910 |
| Average pay, m | 3.88 |
| Rock Volume, $10^4m^3$ | 7 411 |
| Porosity, % | 35.0 |
| Connate Water, % | 16.0 |
| Shrinkage, % | 98.5 |
| Initial oil in place, $10^6m^3$ | 21.491 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 8.1 |
| Improved Recovery, % | 0.9 |
| Improved Recovery Mechanism | * |
| Total Recoverable Oil, $10^6m^3$ | 1.934 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.174 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.760 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ____ | _____ |
| ___ | Waterflooding | ____ | _____ |
| ___ | $CO_2$ | ____ | _____ |
| ___ | Hydrocarbon | ____ | _____ |
| ___ | Chemical Flooding | ____ | _____ |
| ✓ | Thermal Techniques | ____ | _____ |
| ___ | Other: _____ | ____ | _____ |
| ___ | No Potential | | |

Comments: *Pilot insitu wet combustion and pilot insitu oxygen wet combustion projects.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Gully Lake
POOL: Waseca
UNIT: Unit No. 1

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 106 | |
| 1983 | 93 | |
| 1984 | 82 | |
| 1985 | 73 | |
| 1986 | 65 | |
| 1987 | 58 | |
| 1988 | 52 | |
| 1989 | 46 | |
| 1990 | 41 | |
| 1991 | 37 | |
| 1992 | 32 | |
| 1993 | 29 | |
| 1994 | 26 | |
| 1995 | 23 | |
| 1996 | 20 | |
| 1997 | 18 | |
| 1998 | 16 | |
| 1999 | 14 | |
| 2000 | 13 | |
| 2001 | 11 | |
| 2002 | 10 | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 874 |
| Average pay, m | 4.33 |
| Rock Volume, $10^4 m^3$ | 3 784 |
| Porosity, % | 35.7 |
| Connate Water, % | 16.0 |
| Shrinkage, % | 96.8 |
| Initial oil in place, $10^6 m^3$ | 10.975 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 4.0 |
| Improved Recovery, % | 3.7 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6 m^3$ | 0.845 |
| Cumulative oil production to 1983-01-01, $10^6 m^3$ | 0.570 |
| Remaining Established Reserves at 1983-01-01, $10^6 m^3$ | 0.275 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6 m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ✓ | Thermal Techniques | ___ | ___ |
| ___ | Other: _____ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Gully Lake
POOL: Waseca
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 172 | |
| 1983 | 153 | |
| 1984 | 136 | |
| 1985 | 121 | |
| 1986 | 108 | |
| 1987 | 96 | |
| 1988 | 86 | |
| 1989 | 76 | |
| 1990 | 68 | |
| 1991 | 60 | |
| 1992 | 54 | |
| 1993 | 48 | |
| 1994 | 42 | |
| 1995 | 38 | |
| 1996 | 34 | |
| 1997 | 30 | |
| 1998 | 27 | |
| 1999 | 24 | |
| 2000 | 21 | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 036 |
| Average pay, m | 4.70 |
| Rock Volume, $10^4m^3$ | 4 869 |
| Porosity, % | 35.7 |
| Connate Water, % | 16.0 |
| Shrinkage, % | 96.8 |
| Initial oil in place, $10^6m^3$ | 14.121 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 6.5 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 0.918 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.488 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.430 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.

SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Lone Rock
POOL: Sparky
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 36 | |
| 1983 | 34 | |
| 1984 | 31 | |
| 1985 | 28 | |
| 1986 | 26 | |
| 1987 | 24 | |
| 1988 | 22 | |
| 1989 | 20 | |
| 1990 | 19 | |
| 1991 | 17 | |
| 1992 | | |
| 1993 | | |
| 1994 | | |
| 1995 | | |
| 1996 | | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 955 |
| Average pay, m | 5.49 |
| Rock Volume, $10^4 m^3$ | 5 243 |
| Porosity, % | 33.0 |
| Connate Water, % | 15.0 |
| Shrinkage, % | 95.0 |
| Initial oil in place, $10^6 m^3$ | 13.946 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 7.5 |
| Improved Recovery, % | 1.5 |
| Improved Recovery Mechanism | * |
| Total Recoverable Oil, $10^6 m^3$ | 1.255 |
| Cumulative oil production to 1983-01-01, $10^6 m^3$ | 1.174 |
| Remaining Established Reserves at 1983-01-01, $10^6 m^3$ | 0.081 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6 m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ✓ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments: *Pilot steamflood project approved with start up in 1984. Improved recovery recognized above is for waterflood.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Macklin
POOL: Sparky
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 137 | |
| 1983 | 141 | |
| 1984 | 125 | |
| 1985 | 111 | |
| 1986 | 98 | |
| 1987 | 87 | |
| 1988 | 77 | |
| 1989 | 68 | |
| 1990 | 60 | |
| 1991 | 53 | |
| 1992 | 47 | |
| 1993 | 42 | |
| 1994 | 37 | |
| 1995 | 33 | |
| 1996 | 29 | |
| 1997 | 26 | |
| 1998 | 23 | |
| 1999 | 20 | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 281 |
| Average pay, m | 3.50 |
| Rock Volume, $10^4m^3$ | 4 484 |
| Porosity, % | 35.0 |
| Connate Water, % | 23.0 |
| Shrinkage, % | 96.8 |
| Initial oil in place, $10^6m^3$ | 11.702 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 6.3 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 0.737 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.230 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.507 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ✓ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Standard Hill
POOL: Waseca
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 310 | |
| 1983 | 273 | |
| 1984 | 240 | |
| 1985 | 211 | |
| 1986 | 186 | |
| 1987 | 163 | |
| 1988 | 144 | |
| 1989 | 127 | |
| 1990 | 111 | |
| 1991 | 98 | |
| 1992 | 86 | |
| 1993 | 76 | |
| 1994 | 66 | |
| 1995 | 59 | |
| 1996 | 52 | |
| 1997 | 45 | |
| 1998 | 40 | |
| 1999 | 35 | |
| 2000 | 31 | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 877 |
| Average pay, m | 3.62 |
| Rock Volume, $10^4m^3$ | 6 795 |
| Porosity, % | 34.0 |
| Connate Water, % | 16.0 |
| Shrinkage, % | 98.5 |
| Initial oil in place, $10^6m^3$ | 19.093 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 8.9 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 1.699 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.602 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 1.097 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | |
| ___ | Waterflooding | ___ | |
| ___ | $CO_2$ | ___ | |
| ___ | Hydrocarbon | ___ | |
| ___ | Chemical Flooding | ___ | |
| ✓ | Thermal Techniques | ___ | |
| ___ | Other: | ___ | |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Tangleflags
POOL: G.P., Lloydminster, Sparky
UNIT: Vol. Unit #1* and Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 613 | |
| 1983 | 589 | |
| 1984 | 530 | |
| 1985 | 476 | |
| 1986 | 428 | |
| 1987 | 385 | |
| 1988 | 346 | |
| 1989 | 311 | |
| 1990 | 279 | |
| 1991 | 251 | |
| 1992 | 227 | |
| 1993 | 204 | |
| 1994 | 184 | |
| 1995 | 165 | |
| 1996 | 148 | |
| 1997 | 64 | |
| 1998 | 58 | |
| 1999 | 52 | |
| 2000 | 46 | |
| 2001 | 32 | |
| 2002 | 29 | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | 34 189 |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 88.485 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | * |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 4.994 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.779 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 3.215 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | | |
| ___ | Waterflooding | | |
| ___ | $CO_2$ | | |
| ___ | Hydrocarbon | | |
| ___ | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| ___ | Other: | | |
| ___ | No Potential | | |

Comments: *Voluntary Unit No. 1 was rescinded in 1983 and will become part of the non-unit area. A pilot in situ wet combustion project has been approved for the G.P. and Lloydminster sands which will start operating in 1984.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Tangleflags
POOL: Lloydminster
UNIT: Vol. Unit #2

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 38 | |
| 1983 | 34 | |
| 1984 | 31 | |
| 1985 | 28 | |
| 1986 | 25 | |
| 1987 | 22 | |
| 1988 | 20 | |
| 1989 | 18 | |
| 1990 | 16 | |
| 1991 | 15 | |
| 1992 | 13 | |
| 1993 | 12 | |
| 1994 | 11 | |
| 1995 | 9 | |
| 1996 | 9 | |
| 1997 | 8 | |
| 1998 | 7 | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves
at 1983-01-01

| | |
|---|---|
| Area, ha | 421 |
| Average pay, m | 3.54 |
| Rock Volume, $10^4m^3$ | 1 490 |
| Porosity, % | 30.0 |
| Connate Water, % | 21.0 |
| Shrinkage, % | 98.0 |
| Initial oil in place, $10^6m^3$ | 3.458 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 5.5 |
| Improved Recovery, % | 2.5 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 0.276 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.178 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.098 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Tangleflags
POOL: McLaren, Sparky, Lloydminster, G.P.
UNIT: Vol. Unit No. 3

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 113 | |
| 1983 | 110 | |
| 1984 | 101 | |
| 1985 | 93 | |
| 1986 | 87 | |
| 1987 | 75 | |
| 1988 | 72 | |
| 1989 | 67 | |
| 1990 | 62 | |
| 1991 | 55 | |
| 1992 | 51 | |
| 1993 | 47 | |
| 1994 | 43 | |
| 1995 | 40 | |
| 1996 | 37 | |
| 1997 | 34 | |
| 1998 | 31 | |
| 1999 | 29 | |
| 2000 | 13 | |
| 2001 | 10 | |
| 2002 | 9 | |
| 2003 | 9 | |
| 2004 | 8 | |
| 2005 | 8 | |

C. OIL RESERVOIR DATA
For Established Reserves
at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | 7 068 |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 16.356 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 0.605 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.197 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.408 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Other - Husky Pipelines Ltd. and
POOL: Manito Pipelines Ltd.
UNIT:

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 2 295 | |
| 1983 | 3 075 | |
| 1984 | 2 950 | |
| 1985 | 2 572 | |
| 1986 | 2 465 | |
| 1987 | 2 201 | |
| 1988 | 1 962 | |
| 1989 | 1 760 | |
| 1990 | 1 581 | |
| 1991 | 1 425 | |
| 1992 | 1 250 | |
| 1993 | 1 129 | |
| 1994 | 1 004 | |
| 1995 | 802 | |
| 1996 | 761 | |
| 1997 | 641 | |
| 1998 | 500 | |
| 1999 | 422 | |
| 2000 | 356 | |
| 2001 | 295 | |
| 2002 | 252 | |
| 2003 | 213 | |
| 2004 | 188 | |
| 2005 | 167 | |

C. OIL RESERVOIR DATA
For Established Reserves
at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4 m^3$ | |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6 m^3$ | 408.206 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6 m^3$ | 19.588 |
| Cumulative oil production to 1983-01-01, $10^6 m^3$ | 7.607 |
| Remaining Established Reserves at 1983-01-01, $10^6 m^3$ | 11.981 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6 m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Total - Husky Pipelines Ltd. and
POOL: Manito Pipelines Ltd.
UNIT: Heavy

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 5 618 | |
| 1983 | 6 395 | |
| 1984 | 6 070 | |
| 1985 | 5 320 | |
| 1986 | 4 870 | |
| 1987 | 4 190 | |
| 1988 | 3 748 | |
| 1989 | 3 358 | |
| 1990 | 3 015 | |
| 1991 | 2 709 | |
| 1992 | 2 388 | |
| 1993 | 2 151 | |
| 1994 | 1 919 | |
| 1995 | 1 588 | |
| 1996 | 1 410 | |
| 1997 | 1 129 | |
| 1998 | 779 | |
| 1999 | 659 | |
| 2000 | 538 | |
| 2001 | 377 | |
| 2002 | 328 | |
| 2003 | 248 | |
| 2004 | 220 | |
| 2005 | 198 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 841.835 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 51.910 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 28.677 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 23.233 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ | Comments: |
|---|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ | |
| ___ | Waterflooding | ___ | ___ | |
| ___ | $CO_2$ | ___ | ___ | |
| ___ | Hydrocarbon | ___ | ___ | |
| ___ | Chemical Flooding | ___ | ___ | |
| ___ | Thermal Techniques | ___ | ___ | |
| ___ | Other: ___ | ___ | ___ | |
| ___ | No Potential | | | |

## II. BOW RIVER PIPE LINES LTD. AND CACTUS LAKE PIPELINE SYSTEM - HEAVY

| FIELD | POOL | UNIT |
|---|---|---|
| Cactus Lake | Bakken-Basal Mannville | Non-Unit |
| Coleville | Bakken | Non-Unit |
| North Hoosier | Bakken | Vol. Unit |
| | Basal Blairmore | Vol. Unit |

Other - Bow River Pipe Lines Ltd. and Cactus Lake Pipeline System - Heavy

Total - Bow River Pipe Lines Ltd. and Cactus Lake Pipeline System - Heavy

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Cactus Lake
POOL: Bakken - Basal Mannville
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 583 | |
| 1983 | 516 | |
| 1984 | 454 | |
| 1985 | 400 | |
| 1986 | 352 | |
| 1987 | 309 | |
| 1988 | 272 | |
| 1989 | 240 | |
| 1990 | 211 | |
| 1991 | 186 | |
| 1992 | 164 | |
| 1993 | 144 | |
| 1994 | 126 | |
| 1995 | 111 | |
| 1996 | 98 | |
| 1997 | 86 | |
| 1998 | 76 | |
| 1999 | 67 | |
| 2000 | 59 | |
| 2001 | 52 | |
| 2002 | 45 | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 942 |
| Average pay, m | 8.16 |
| Rock Volume, $10^4m^3$ | 15 847 |
| Porosity, % | 29.4 |
| Connate Water, % | 25.0 |
| Shrinkage, % | 95.0 |
| Initial oil in place, $10^6m^3$ | 33.120 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 5.5 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 1.822 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.444 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 1.378 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Coleville
POOL: Bakken
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 577 | |
| 1983 | 535 | |
| 1984 | 489 | |
| 1985 | 448 | |
| 1986 | 410 | |
| 1987 | 375 | |
| 1988 | 343 | |
| 1989 | 314 | |
| 1990 | 287 | |
| 1991 | 263 | |
| 1992 | 240 | |
| 1993 | 220 | |
| 1994 | 201 | |
| 1995 | 184 | |
| 1996 | 169 | |
| 1997 | 154 | |
| 1998 | 141 | |
| 1999 | 129 | |
| 2000 | 118 | |
| 2001 | 108 | |
| 2002 | 99 | |
| 2003 | 90 | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 703 |
| Average pay, m | 12.71 |
| Rock Volume, $10^4 m^3$ | 34 355 |
| Porosity, % | 24.1 |
| Connate Water, % | 31.0 |
| Shrinkage, % | 92.8 |
| Initial oil in place, $10^6 m^3$ | 52.907 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 4.2 |
| Improved Recovery, % | 10.7 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6 m^3$ | 7.883 |
| Cumulative oil production to 1983-01-01, $10^6 m^3$ | 5.957 |
| Remaining Established Reserves at 1983-01-01, $10^6 m^3$ | 1.926 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6 m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| ✓ | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: North Hoosier
POOL: Bakken
UNIT: Vol. Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 115 | |
| 1983 | 108 | |
| 1984 | 98 | |
| 1985 | 89 | |
| 1986 | 81 | |
| 1987 | 74 | |
| 1988 | 67 | |
| 1989 | 61 | |
| 1990 | 56 | |
| 1991 | 51 | |
| 1992 | 46 | |
| 1993 | 42 | |
| 1994 | 38 | |
| 1995 | 35 | |
| 1996 | 32 | |
| 1997 | 29 | |
| 1998 | 26 | |
| 1999 | 24 | |
| 2000 | 22 | |
| 2001 | 20 | |
| 2002 | 18 | |
| 2003 | 16 | |
| 2004 | 15 | |
| 2005 | 14 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 558 |
| Average pay, m | 6.92 |
| Rock Volume, $10^4m^3$ | 3 861 |
| Porosity, % | 30.5 |
| Connate Water, % | 22.0 |
| Shrinkage, % | 93.8 |
| Initial oil in place, $10^6m^3$ | 8.611 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 2.3 |
| Improved Recovery, % | 10.9 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 1.137 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.734 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.403 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ | Comments: |
|---|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ | |
| ___ | Waterflooding | ___ | ___ | |
| ___ | $CO_2$ | ___ | ___ | |
| ___ | Hydrocarbon | ___ | ___ | |
| ___ | Chemical Flooding | ___ | ___ | |
| ✓ | Thermal Techniques | ___ | ___ | |
| ___ | Other: ___ | ___ | ___ | |
| ___ | No Potential | | | |

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: North Hoosier
POOL: Basal Blairmore
UNIT: Vol. Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 60 | |
| 1983 | 58 | |
| 1984 | 53 | |
| 1985 | 48 | |
| 1986 | 43 | |
| 1987 | 39 | |
| 1988 | 35 | |
| 1989 | 32 | |
| 1990 | 29 | |
| 1991 | 26 | |
| 1992 | 24 | |
| 1993 | 21 | |
| 1994 | 19 | |
| 1995 | 17 | |
| 1996 | 16 | |
| 1997 | 14 | |
| 1998 | 13 | |
| 1999 | 12 | |
| 2000 | 11 | |
| 2001 | 10 | |
| 2002 | 9 | |
| 2003 | 8 | |
| 2004 | 7 | |
| 2005 | 6 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 287 |
| Average pay, m | 7.44 |
| Rock Volume, $10^4m^3$ | 2 135 |
| Porosity, % | 28.0 |
| Connate Water, % | 27.0 |
| Shrinkage, % | 95.3 |
| Initial oil in place, $10^5m^3$ | 4.164 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 6.0 |
| Improved Recovery, % | 10.8 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 0.700 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.498 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.202 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Other - Bow River Pipe Lines Ltd. and
POOL: Cactus Lake Pipeline System
UNIT: Heavy

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 507 | |
| 1983 | 669 | |
| 1984 | 627 | |
| 1985 | 590 | |
| 1986 | 550 | |
| 1987 | 504 | |
| 1988 | 466 | |
| 1989 | 427 | |
| 1990 | 394 | |
| 1991 | 364 | |
| 1992 | 334 | |
| 1993 | 305 | |
| 1994 | 279 | |
| 1995 | 257 | |
| 1996 | 228 | |
| 1997 | 193 | |
| 1998 | 174 | |
| 1999 | 164 | |
| 2000 | 153 | |
| 2001 | 143 | |
| 2002 | 126 | |
| 2003 | 117 | |
| 2004 | 109 | |
| 2005 | 102 | |

C. OIL RESERVOIR DATA
For Established Reserves
at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 78.733 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 3.820 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.964 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 2.856 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Total - Bow River Pipe Lines Ltd. and Cactus Lake Pipeline System
POOL:
UNIT: Heavy

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 1 842 | |
| 1983 | 1 886 | |
| 1984 | 1 721 | |
| 1985 | 1 575 | |
| 1986 | 1 436 | |
| 1987 | 1 301 | |
| 1988 | 1 183 | |
| 1989 | 1 074 | |
| 1990 | 977 | |
| 1991 | 890 | |
| 1992 | 808 | |
| 1993 | 732 | |
| 1994 | 663 | |
| 1995 | 604 | |
| 1996 | 543 | |
| 1997 | 476 | |
| 1998 | 430 | |
| 1999 | 396 | |
| 2000 | 363 | |
| 2001 | 333 | |
| 2002 | 297 | |
| 2003 | 231 | |
| 2004 | 131 | |
| 2005 | 122 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 177.535 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 15.362 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 8.597 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 6.765 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

## III. SOUTH SASKATCHEWAN PIPE LINE COMPANY - MEDIUM

| FIELD | POOL | UNIT |
|---|---|---|
| Battrum | Roseray | Unit #1 |
| | Roseray | Unit #2 |
| | Roseray | Unit #3 |
| | Roseray | Unit #4 |
| Beverly | Cantuar | Non-Unit |
| | Upper Roseray | Unit #1 |
| Bone Creek | Upper Shaunavon | Bone Creek Unit |
| Cantuar | Lower Roseray | Cantuar Unit |
| Cantuar Main | Cantuar | Cantuar Unit |
| Delta | Upper Shaunavon | Unit #1 |
| Dollard | Upper Shaunavon | Dollard Unit |
| Fosterton | Roseray | Main Unit |
| Gull Lake North | Upper Shaunavon | North Unit |
| Instow | Upper Shaunavon | Instow Unit |
| Main Success | Roseray | Main Unit |
| North Premier | Roseray | Unit No. 4 |
| | Upper Shaunavon | Unit #4 |
| Rapdan | Upper Shaunavon | Rapdan Unit |
| South Success | Roseray | Success Unit |
| Suffield | Roseray | Unit #3 |
| | Upper Shaunavon | Unit #2 |
| Verlo | Roseray | Verlo Unit |

Other - South Saskatchewan Pipe Line Company - Medium

Total - South Saskatchewan Pipe Line Company - Medium

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Battrum
POOL: Roseray
UNIT: Unit #1

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 299 | |
| 1983 | 331 | |
| 1984 | 313 | |
| 1985 | 295 | |
| 1986 | 279 | |
| 1987 | 264 | |
| 1988 | 249 | |
| 1989 | 236 | |
| 1990 | 223 | |
| 1991 | 210 | |
| 1992 | 199 | |
| 1993 | 188 | |
| 1994 | 177 | |
| 1995 | 168 | |
| 1996 | 159 | |
| 1997 | 150 | |
| 1998 | 142 | |
| 1999 | 134 | |
| 2000 | 127 | |
| 2001 | 120 | |
| 2002 | 113 | |
| 2003 | 107 | |
| 2004 | 101 | |
| 2005 | 95 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 599 |
| Average pay, m | 10.73 |
| Rock Volume, $10^4m^3$ | 17 157 |
| Porosity, % | 26.0 |
| Connate Water, % | 33.2 |
| Shrinkage, % | 97.5 |
| Initial oil in place, $10^6m^3$ | 28.996 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 10.0 |
| Improved Recovery, % | 10.0 |
| Improved Recovery Mechanism | * |
| Total Recoverable Oil, $10^6m^3$ | 5.800 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 4.284 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 1.516 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments: *Insitu wet combustion.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Battrum
POOL: Roseray
UNIT: Unit #2

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 102 | |
| 1983 | 171 | |
| 1984 | 158 | |
| 1985 | 146 | |
| 1986 | 135 | |
| 1987 | 125 | |
| 1988 | 116 | |
| 1989 | 107 | |
| 1990 | 99 | |
| 1991 | 92 | |
| 1992 | 85 | |
| 1993 | 79 | |
| 1994 | 73 | |
| 1995 | 67 | |
| 1996 | 62 | |
| 1997 | 58 | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 324 |
| Average pay, m | 9.75 |
| Rock Volume, $10^4m^3$ | 3 159 |
| Porosity, % | 27.4 |
| Connate Water, % | 29.0 |
| Shrinkage, % | 97.5 |
| Initial oil in place, $10^6m^3$ | 6.002 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 6.6 |
| Improved Recovery, % | 22.4 |
| Improved Recovery Mechanism | * |
| Total Recoverable Oil, $10^6m^3$ | 1.740 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.034 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.706 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments: *Insitu wet combustion.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Battrum
POOL: Roseray
UNIT: Unit #3

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 111 | |
| 1983 | 176 | |
| 1984 | 168 | |
| 1985 | 161 | |
| 1986 | 153 | |
| 1987 | 146 | |
| 1988 | 140 | |
| 1989 | 134 | |
| 1990 | 128 | |
| 1991 | 122 | |
| 1992 | 116 | |
| 1993 | 111 | |
| 1994 | 106 | |
| 1995 | 101 | |
| 1996 | 96 | |
| 1997 | 92 | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 842 |
| Average pay, m | 5.79 |
| Rock Volume, $10^4m^3$ | 4 875 |
| Porosity, % | 25.1 |
| Connate Water, % | 39.3 |
| Shrinkage, % | 97.7 |
| Initial oil in place, $10^3m^3$ | 7.264 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 8.0 |
| Improved Recovery, % | 23.0 |
| Improved Recovery Mechanism | * |
| Total Recoverable Oil, $10^6m^3$ | 2.252 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.088 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 1.164 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| ✓ | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments: *Waterflood and insitu wet combustion.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Battrum
POOL: Roseray
UNIT: Unit #4

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 74 | |
| 1983 | 80 | |
| 1984 | 74 | |
| 1985 | 68 | |
| 1986 | 63 | |
| 1987 | 59 | |
| 1988 | 54 | |
| 1989 | 50 | |
| 1990 | 46 | |
| 1991 | 43 | |
| 1992 | | |
| 1993 | | |
| 1994 | | |
| 1995 | | |
| 1996 | | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 453 |
| Average pay, m | 5.09 |
| Rock Volume, $10^4m^3$ | 2 306 |
| Porosity, % | 25.1 |
| Connate Water, % | 39.3 |
| Shrinkage, % | 97.7 |
| Initial oil in place, $10^3m^3$ | 3.436 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 8.3 |
| Improved Recovery, % | 23.2 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 1.082 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.741 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.341 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ____ | ____ |
| ___ | Waterflooding | ____ | ____ |
| ___ | $CO_2$ | ____ | ____ |
| ___ | Hydrocarbon | ____ | ____ |
| ___ | Chemical Flooding | ____ | ____ |
| ___ | Thermal Techniques | ____ | ____ |
| ___ | Other: ____ | ____ | ____ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Beverley
POOL: Cantuar
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 70 | |
| 1983 | 91 | |
| 1984 | 82 | |
| 1985 | 74 | |
| 1986 | 67 | |
| 1987 | 60 | |
| 1988 | 54 | |
| 1989 | 49 | |
| 1990 | 44 | |
| 1991 | 39 | |
| 1992 | 35 | |
| 1993 | 32 | |
| 1994 | 29 | |
| 1995 | 26 | |
| 1996 | 23 | |
| 1997 | 21 | |
| 1998 | 19 | |
| 1999 | 17 | |
| 2000 | 15 | |
| 2001 | 14 | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves
at 1983-01-01

| | |
|---|---|
| Area, ha | 1 182 |
| Average pay, m | 4.97 |
| Rock Volume, $10^4m^3$ | 5 875 |
| Porosity, % | 22.6 |
| Connate Water, % | 46.1 |
| Shrinkage, % | 92.9 |
| Initial oil in place, $10^3m^3$ | 6.638 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 6.20 |
| Improved Recovery, % | 3.2 |
| Improved Recovery Mechanism | Pilot Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 0.624 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.321 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.303 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| ✓ | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Beverley
POOL: Upper Roseray
UNIT: Unit #1

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 70 | |
| 1983 | 83 | |
| 1984 | 75 | |
| 1985 | 69 | |
| 1986 | 62 | |
| 1987 | 57 | |
| 1988 | 52 | |
| 1989 | 47 | |
| 1990 | 43 | |
| 1991 | 39 | |
| 1992 | 35 | |
| 1993 | 32 | |
| 1994 | 29 | |
| 1995 | 26 | |
| 1996 | 24 | |
| 1997 | 22 | |
| 1998 | 20 | |
| 1999 | 18 | |
| 2000 | 16 | |
| 2001 | 15 | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 805 |
| Average pay, m | 3.11 |
| Rock Volume, $10^4m^3$ | 2 504 |
| Porosity, % | 28.0 |
| Connate Water, % | 38.8 |
| Shrinkage, % | 94.1 |
| Initial oil in place, $10^6m^3$ | 4.031 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 15.0 |
| Improved Recovery, % | 29.5 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 1.794 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.481 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.313 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Bone Creek
POOL: Upper Shaunavon
UNIT: Bone Creek Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 96 | |
| 1983 | 102 | |
| 1984 | 90 | |
| 1985 | 80 | |
| 1986 | 71 | |
| 1987 | 62 | |
| 1988 | 55 | |
| 1989 | 49 | |
| 1990 | 43 | |
| 1991 | 38 | |
| 1992 | 34 | |
| 1993 | 30 | |
| 1994 | 27 | |
| 1995 | 24 | |
| 1996 | 21 | |
| 1997 | 18 | |
| 1998 | 16 | |
| 1999 | 14 | |
| 2000 | 13 | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 226 |
| Average pay, m | 4.63 |
| Rock Volume, $10^4m^3$ | 10 306 |
| Porosity, % | 13.8 |
| Connate Water, % | 5.0 |
| Shrinkage, % | 94.0 |
| Initial oil in place, $10^5m^3$ | 12.677 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 5.0 |
| Improved Recovery, % | 14.5 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 2.472 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 2.167 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.305 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Cantuar
POOL: Lower Roseray
UNIT: Cantuar Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 53 | |
| 1983 | 121 | |
| 1984 | 107 | |
| 1985 | 95 | |
| 1986 | 84 | |
| 1987 | 74 | |
| 1988 | 66 | |
| 1989 | 58 | |
| 1990 | 52 | |
| 1991 | 46 | |
| 1992 | | |
| 1993 | | |
| 1994 | | |
| 1995 | | |
| 1996 | | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 765 |
| Average pay, m | 2.65 |
| Rock Volume, $10^4m^3$ | 7 327 |
| Porosity, % | 27.2 |
| Connate Water, % | 24.6 |
| Shrinkage, % | 92.7 |
| Initial oil in place, $10^3m^3$ | 13.922 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 12.5 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 1.740 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.423 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.317 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ | Comments: |
|---|---|---|---|---|
| ___ | Infill Drilling | ____ | _____ | |
| ___ | Waterflooding | ____ | _____ | |
| ___ | $CO_2$ | ____ | _____ | |
| ___ | Hydrocarbon | ____ | _____ | |
| ___ | Chemical Flooding | ____ | _____ | |
| ___ | Thermal Techniques | ____ | _____ | |
| ___ | Other: _____ | ____ | _____ | |
| ___ | No Potential | | | |

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Cantuar Main
POOL: Cantuar
UNIT: Cantuar Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 268 | |
| 1983 | 255 | |
| 1984 | 225 | |
| 1985 | 199 | |
| 1986 | 176 | |
| 1987 | 156 | |
| 1988 | 138 | |
| 1989 | 122 | |
| 1990 | 108 | |
| 1991 | 96 | |
| 1992 | 85 | |
| 1993 | 75 | |
| 1994 | 67 | |
| 1995 | 59 | |
| 1996 | 52 | |
| 1997 | 46 | |
| 1998 | 41 | |
| 1999 | 36 | |
| 2000 | 32 | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 3 166 |
| Average pay, m | 5.06 |
| Rock Volume, $10^4 m^3$ | 16 020 |
| Porosity, % | 26.4 |
| Connate Water, % | 43.6 |
| Shrinkage, % | 92.7 |
| Initial oil in place, $10^6 m^3$ | 22.108 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 8.7 |
| Improved Recovery, % | 10.4 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6 m^3$ | 4.222 |
| Cumulative oil production to 1983-01-01, $10^6 m^3$ | 3.490 |
| Remaining Established Reserves at 1983-01-01, $10^6 m^3$ | 0.732 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6 m^3$ | Comments: |
|---|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ | |
| ___ | Waterflooding | ___ | ___ | |
| ___ | $CO_2$ | ___ | ___ | |
| ___ | Hydrocarbon | ___ | ___ | |
| ___ | Chemical Flooding | ___ | ___ | |
| ___ | Thermal Techniques | ___ | ___ | |
| ___ | Other: ___ | ___ | ___ | |
| ___ | No Potential | | | |

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Delta
POOL: Upper Shaunavon
UNIT: Unit #1

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 73 | |
| 1983 | 109 | |
| 1984 | 97 | |
| 1985 | 86 | |
| 1986 | 77 | |
| 1987 | 68 | |
| 1988 | 61 | |
| 1989 | 54 | |
| 1990 | 48 | |
| 1991 | 43 | |
| 1992 | 38 | |
| 1993 | 34 | |
| 1994 | 30 | |
| 1995 | 27 | |
| 1996 | 24 | |
| 1997 | 21 | |
| 1998 | 19 | |
| 1999 | 17 | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 159 |
| Average pay, m | 3.20 |
| Rock Volume, $10^4m^3$ | 6 909 |
| Porosity, % | 20.4 |
| Connate Water, % | 28.5 |
| Shrinkage, % | 93.1 |
| Initial oil in place, $10^3m^3$ | 9.396 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 12.0 |
| Improved Recovery, % | 13.7 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 2.415 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 2.065 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.350 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other:_____ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Dollard
POOL: Upper Shaunavon
UNIT: Dollard Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 335 | |
| 1983 | 289 | |
| 1984 | 242 | |
| 1985 | 202 | |
| 1986 | 168 | |
| 1987 | 141 | |
| 1988 | 117 | |
| 1989 | 98 | |
| 1990 | 82 | |
| 1991 | 68 | |
| 1992 | 57 | |
| 1993 | 48 | |
| 1994 | 40 | |
| 1995 | 33 | |
| 1996 | 28 | |
| 1997 | 23 | |
| 1998 | 19 | |
| 1999 | 16 | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 3 642 |
| Average pay, m | 4.42 |
| Rock Volume, $10^4m^3$ | 16 098 |
| Porosity, % | 20.0 |
| Connate Water, % | 12.0 |
| Shrinkage, % | 92.0 |
| Initial oil in place, $10^6m^3$ | 26.078 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 20.0 |
| Improved Recovery, % | 29.0 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 12.779 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 12.123 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.656 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Fosterton
POOL: Roseray
UNIT: Main Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 169 | |
| 1983 | 278 | |
| 1984 | 250 | |
| 1985 | 225 | |
| 1986 | 203 | |
| 1987 | 182 | |
| 1988 | 164 | |
| 1989 | 148 | |
| 1990 | 133 | |
| 1991 | 120 | |
| 1992 | 108 | |
| 1993 | 97 | |
| 1994 | 87 | |
| 1995 | 79 | |
| 1996 | 71 | |
| 1997 | 64 | |
| 1998 | 57 | |
| 1999 | 52 | |
| 2000 | 46 | |
| 2001 | 42 | |
| 2002 | 38 | |
| 2003 | 34 | |
| 2004 | 31 | |
| 2005 | 27 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 012 |
| Average pay, m | 9.81 |
| Rock Volume, $10^4m^3$ | 9 928 |
| Porosity, % | 28.8 |
| Connate Water, % | 19.0 |
| Shrinkage, % | 95.0 |
| Initial oil in place, $10^6m^3$ | 22.040 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 17.0 |
| Improved Recovery, % | 26.2 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 9.521 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 8.355 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 1.166 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ | Comments: |
|---|---|---|---|---|
| | Infill Drilling | | | |
| | Waterflooding | | | |
| | $CO_2$ | | | |
| | Hydrocarbon | | | |
| | Chemical Flooding | | | |
| ✓ | Thermal Techniques | | | |
| | Other: | | | |
| | No Potential | | | |

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Gull Lake North
POOL: Upper Shaunavon
UNIT: North Unit

---

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 92 | |
| 1983 | 94 | |
| 1984 | 81 | |
| 1985 | 69 | |
| 1986 | 60 | |
| 1987 | 51 | |
| 1988 | 44 | |
| 1989 | 38 | |
| 1990 | 33 | |
| 1991 | 28 | |
| 1992 | 24 | |
| 1993 | 21 | |
| 1994 | 18 | |
| 1995 | 15 | |
| 1996 | 13 | |
| 1997 | 11 | |
| 1998 | 10 | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves
at 1983-01-01

| | |
|---|---|
| Area, ha | 1 230 |
| Average pay, m | 3.93 |
| Rock Volume, $10^4m^3$ | 4 834 |
| Porosity, % | 19.4 |
| Connate Water, % | 25.0 |
| Shrinkage, % | 97.0 |
| Initial oil in place, $10^5m^3$ | 6.816 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 10.0 |
| Improved Recovery, % | 36.0 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 3.136 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 2.867 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.269 |

---

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | |
| ___ | Waterflooding | ___ | |
| ___ | $CO_2$ | ___ | |
| ___ | Hydrocarbon | ___ | |
| ___ | Chemical Flooding | ___ | |
| ___ | Thermal Techniques | ___ | |
| ___ | Other: | ___ | |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Instow
POOL: Upper Shaunavon
UNIT: Instow Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 303 | |
| 1983 | 305 | |
| 1984 | 275 | |
| 1985 | 247 | |
| 1986 | 223 | |
| 1987 | 200 | |
| 1988 | 180 | |
| 1989 | 162 | |
| 1990 | 146 | |
| 1991 | 131 | |
| 1992 | 118 | |
| 1993 | 106 | |
| 1994 | 96 | |
| 1995 | 86 | |
| 1996 | 77 | |
| 1997 | 70 | |
| 1998 | 63 | |
| 1999 | 56 | |
| 2000 | 51 | |
| 2001 | 46 | |
| 2002 | 41 | |
| 2003 | 37 | |
| 2004 | 33 | |
| 2005 | 30 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 4 249 |
| Average pay, m | 4.54 |
| Rock Volume, $10^4m^3$ | 19 290 |
| Porosity, % | 13.8 |
| Connate Water, % | 5.0 |
| Shrinkage, % | 94.0 |
| Initial oil in place, $10^6m^3$ | 23.727 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 9.0 |
| Improved Recovery, % | 24.5 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 7.948 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 6.926 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 1.022 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Main Success
POOL: Roseray
UNIT: Main Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 20 | |
| 1983 | 57 | |
| 1984 | 49 | |
| 1985 | 42 | |
| 1986 | 36 | |
| 1987 | 31 | |
| 1988 | | |
| 1989 | | |
| 1990 | | |
| 1991 | | |
| 1992 | | |
| 1993 | | |
| 1994 | | |
| 1995 | | |
| 1996 | | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 770 |
| Average pay, m | 4.51 |
| Rock Volume, $10^4m^3$ | 3 473 |
| Porosity, % | 26.8 |
| Connate Water, % | 19.9 |
| Shrinkage, % | 92.0 |
| Initial oil in place, $10^6m^3$ | 6.841 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 13.0 |
| Improved Recovery, % | 25.4 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 2.627 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 2.520 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.107 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: North Premier
POOL: Roseray
UNIT: Unit No. 4

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 64 | |
| 1983 | 73 | |
| 1984 | 60 | |
| 1985 | 50 | |
| 1986 | 41 | |
| 1987 | 34 | |
| 1988 | 28 | |
| 1989 | 23 | |
| 1990 | 19 | |
| 1991 | 16 | |
| 1992 | 13 | |
| 1993 | 11 | |
| 1994 | 9 | |
| 1995 | 7 | |
| 1996 | | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 635 |
| Average pay, m | 4.45 |
| Rock Volume, $10^4m^3$ | 2 826 |
| Porosity, % | 26.7 |
| Connate Water, % | 35.8 |
| Shrinkage, % | 95.6 |
| Initial oil in place, $10^6m^3$ | 4.634 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 15.0 |
| Improved Recovery, % | 32.0 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 2.178 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 2.022 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.156 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | | |
| ___ | Waterflooding | | |
| ___ | $CO_2$ | | |
| ___ | Hydrocarbon | | |
| ___ | Chemical Flooding | | |
| ___ | Thermal Techniques | | |
| ___ | Other: | | |
| ___ | No Potential | | |

Comments: Unit No. 3 was rescinded and replaced by Unit No. 4 to include both Roseray and Upper Shaunavon.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: North Premier
POOL: Upper Shaunavon
UNIT: Unit No. 4

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 22 | |
| 1983 | 31 | |
| 1984 | 42 | |
| 1985 | 56 | |
| 1986 | 62 | |
| 1987 | 56 | |
| 1988 | 50 | |
| 1989 | 45 | |
| 1990 | 41 | |
| 1991 | 37 | |
| 1992 | 33 | |
| 1993 | | |
| 1994 | | |
| 1995 | | |
| 1996 | | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 309 |
| Average pay, m | 3.20 |
| Rock Volume, $10^4m^3$ | 4 189 |
| Porosity, % | 19.0 |
| Connate Water, % | 45.0 |
| Shrinkage, % | 95.0 |
| Initial oil in place, $10^6m^3$ | 4.147 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 4.6 |
| Improved Recovery, % | 6.1 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 0.444 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.247 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.197 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments: New waterflood was initiated in the Upper Shaunavon zone in this unit in 1981.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Rapdan
POOL: Upper Shaunavon
UNIT: Rapdan Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 165 | |
| 1983 | 176 | |
| 1984 | 158 | |
| 1985 | 142 | |
| 1986 | 128 | |
| 1987 | 115 | |
| 1988 | 104 | |
| 1989 | 93 | |
| 1990 | 84 | |
| 1991 | 76 | |
| 1992 | 68 | |
| 1993 | 61 | |
| 1994 | 55 | |
| 1995 | 50 | |
| 1996 | 45 | |
| 1997 | 40 | |
| 1998 | 36 | |
| 1999 | 33 | |
| 2000 | 29 | |
| 2001 | 26 | |
| 2002 | 24 | |
| 2003 | 21 | |
| 2004 | 19 | |
| 2005 | 17 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 784 |
| Average pay, m | 4.57 |
| Rock Volume, $10^4m^3$ | 12 723 |
| Porosity, % | 15.4 |
| Connate Water, % | 5.0 |
| Shrinkage, % | 92.8 |
| Initial oil in place, $10^6m^3$ | 17.303 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 6.1 |
| Improved Recovery, % | 10.8 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 2.924 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 2.272 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.652 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ____ | ____ |
| ___ | Waterflooding | ____ | ____ |
| ___ | $CO_2$ | ____ | ____ |
| ___ | Hydrocarbon | ____ | ____ |
| ___ | Chemical Flooding | ____ | ____ |
| ___ | Thermal Techniques | ____ | ____ |
| ___ | Other: ____ | ____ | ____ |
| ___ | No Potential | | |

Comments: Polymer injectivity testin is being carried out to determine the feasibility of implementing a polymer augmented waterflood.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: South Success
POOL: Roseray
UNIT: Success Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 93 | |
| 1983 | 143 | |
| 1984 | 131 | |
| 1985 | 121 | |
| 1986 | 111 | |
| 1987 | 102 | |
| 1988 | 94 | |
| 1989 | 86 | |
| 1990 | 80 | |
| 1991 | 73 | |
| 1992 | 67 | |
| 1993 | 62 | |
| 1994 | 57 | |
| 1995 | 52 | |
| 1996 | 48 | |
| 1997 | 44 | |
| 1998 | 41 | |
| 1999 | 37 | |
| 2000 | 34 | |
| 2001 | 32 | |
| 2002 | 29 | |
| 2003 | 27 | |
| 2004 | 25 | |
| 2005 | 23 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 732 |
| Average pay, m | 6.07 |
| Rock Volume, $10^4m^3$ | 4 443 |
| Porosity, % | 27.4 |
| Connate Water, % | 23.4 |
| Shrinkage, % | 91.8 |
| Initial oil in place, $10^6m^3$ | 8.575 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 13.2 |
| Improved Recovery, % | 31.8 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 3.859 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 3.206 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.653 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Suffield
POOL: Roseray
UNIT: Unit #3

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 110 | |
| 1983 | 96 | |
| 1984 | 78 | |
| 1985 | 63 | |
| 1986 | 51 | |
| 1987 | 41 | |
| 1988 | 33 | |
| 1989 | 27 | |
| 1990 | 22 | |
| 1991 | 18 | |
| 1992 | 14 | |
| 1993 | 12 | |
| 1994 | 9 | |
| 1995 | 8 | |
| 1996 | 6 | |
| 1997 | 5 | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 593 |
| Average pay, m | 2.99 |
| Rock Volume, $10^4m^3$ | 1 773 |
| Porosity, % | 26.0 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 92.8 |
| Initial oil in place, $10^6m^3$ | 2.784 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 13.0 |
| Improved Recovery, % | 29.0 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 1.169 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.976 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.193 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Suffield
POOL: Upper Shaunavon
UNIT: Unit #2

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 45 | |
| 1983 | 52 | |
| 1984 | 47 | |
| 1985 | 43 | |
| 1986 | 40 | |
| 1987 | 36 | |
| 1988 | 33 | |
| 1989 | 30 | |
| 1990 | 28 | |
| 1991 | 25 | |
| 1992 | 23 | |
| 1993 | 21 | |
| 1994 | 20 | |
| 1995 | 18 | |
| 1996 | 16 | |
| 1997 | 15 | |
| 1998 | 14 | |
| 1999 | 13 | |
| 2000 | 11 | |
| 2001 | 10 | |
| 2002 | 10 | |
| 2003 | 9 | |
| 2004 | 8 | |
| 2005 | 7 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 699 |
| Average pay, m | 3.60 |
| Rock Volume, $10^4m^3$ | 2 516 |
| Porosity, % | 17.6 |
| Connate Water, % | 25.0 |
| Shrinkage, % | 97.0 |
| Initial oil in place, $10^6m^3$ | 3.221 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 7.0 |
| Improved Recovery, % | 16.5 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 0.756 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.545 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.211 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ | Comments: |
|---|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ | |
| ___ | Waterflooding | ___ | ___ | |
| ___ | $CO_2$ | ___ | ___ | |
| ___ | Hydrocarbon | ___ | ___ | |
| ___ | Chemical Flooding | ___ | ___ | |
| ___ | Thermal Techniques | ___ | ___ | |
| ___ | Other: ___ | ___ | ___ | |
| ___ | No Potential | | | |

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Verlo
POOL: Roseray
UNIT: Verlo Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 178 | |
| 1983 | 213 | |
| 1984 | 187 | |
| 1985 | 165 | |
| 1986 | 145 | |
| 1987 | 128 | |
| 1988 | 112 | |
| 1989 | 99 | |
| 1990 | 87 | |
| 1991 | 77 | |
| 1992 | 67 | |
| 1993 | 59 | |
| 1994 | 52 | |
| 1995 | 46 | |
| 1996 | 40 | |
| 1997 | 35 | |
| 1998 | 31 | |
| 1999 | 27 | |
| 2000 | 24 | |
| 2001 | 21 | |
| 2002 | 19 | |
| 2003 | 16 | |
| 2004 | 14 | |
| 2005 | 13 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 898 |
| Average pay, m | 5.15 |
| Rock Volume, $10^4m^3$ | 4 625 |
| Porosity, % | 27.5 |
| Connate Water, % | 29.1 |
| Shrinkage, % | 92.6 |
| Initial oil in place, $10^6m^3$ | 8.371 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 3.5 |
| Improved Recovery, % | 19.5 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 1.925 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.232 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.693 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Other - South Saskatchewan Pipe Line Company
POOL:
UNIT: S.W. Saskatchewan Medium

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 1 083 | |
| 1983 | 1 234 | |
| 1984 | 1 113 | |
| 1985 | 1 000 | |
| 1986 | 892 | |
| 1987 | 799 | |
| 1988 | 727 | |
| 1989 | 645 | |
| 1990 | 569 | |
| 1991 | 522 | |
| 1992 | 455 | |
| 1993 | 409 | |
| 1994 | 354 | |
| 1995 | 315 | |
| 1996 | 270 | |
| 1997 | 239 | |
| 1998 | 217 | |
| 1999 | 169 | |
| 2000 | 144 | |
| 2001 | 129 | |
| 2002 | 103 | |
| 2003 | 90 | |
| 2004 | 82 | |
| 2005 | 60 | |

C. OIL RESERVOIR DATA For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 131.001 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 15.558 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 11.288 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 4.270 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Total - South Saskatchewan Pipe Line
POOL: Company
UNIT: S.W. Saskatchewan Medium

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 3 895 | |
| 1983 | 4 570 | |
| 1984 | 4 102 | |
| 1985 | 3 698 | |
| 1986 | 3 327 | |
| 1987 | 2 987 | |
| 1988 | 2 663 | |
| 1989 | 2 400 | |
| 1990 | 2 158 | |
| 1991 | 1 959 | |
| 1992 | 1 674 | |
| 1993 | 1 488 | |
| 1994 | 1 335 | |
| 1995 | 1 207 | |
| 1996 | 1 075 | |
| 1997 | 954 | |
| 1998 | 745 | |
| 1999 | 639 | |
| 2000 | 542 | |
| 2001 | 455 | |
| 2002 | 377 | |
| 2003 | 341 | |
| 2004 | 313 | |
| 2005 | 272 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 380.008 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 88.965 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 72.673 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 16.292 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ | Comments: |
|---|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ | |
| ___ | Waterflooding | ___ | ___ | |
| ___ | $CO_2$ | ___ | ___ | |
| ___ | Hydrocarbon | ___ | ___ | |
| ___ | Chemical Flooding | ___ | ___ | |
| ___ | Thermal Techniques | ___ | ___ | |
| ___ | Other: ___ | ___ | ___ | |
| ___ | No Potential | | | |

## IV. WESTSPUR PIPE LINE COMPANY - MEDIUM

| FIELD | POOL | UNIT |
|---|---|---|
| Benson | Midale Beds | Benson Unit |
| Innes | Frobisher-Alida | Non-Unit |
| Lost Horse Hill | Frobisher-Alida | Vol. Unit #1 |
| Midale Central | Midale<br>Midale | Unit<br>Non-Unit |
| Neptune | Ratcliffe | Non-Unit |
| Oungre | Ratcliffe | Vol. Unit #1 |
| Viewfield | Frobisher | Non-Unit |
| Weyburn | Midale<br>Midale | Weyburn Unit<br>Non-Unit |

Other - Westspur Pipe Line Company - Medium

Total - Westspur Pipe Line Company - Medium

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Benson
POOL: Midale Beds
UNIT: Benson Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 119 | |
| 1983 | 108 | |
| 1984 | 101 | |
| 1985 | 95 | |
| 1986 | 89 | |
| 1987 | 84 | |
| 1988 | 79 | |
| 1989 | 74 | |
| 1990 | 70 | |
| 1991 | 66 | |
| 1992 | 62 | |
| 1993 | 58 | |
| 1994 | 55 | |
| 1995 | 51 | |
| 1996 | 48 | |
| 1997 | 45 | |
| 1998 | 43 | |
| 1999 | 40 | |
| 2000 | 38 | |
| 2001 | 35 | |
| 2002 | 33 | |
| 2003 | 31 | |
| 2004 | 29 | |
| 2005 | 28 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 978 |
| Average pay, m | 1.80 |
| Rock Volume, $10^4m^3$ | 5 360 |
| Porosity, % | 24.2 |
| Connate Water, % | 30.0 |
| Shrinkage, % | 89.0 |
| Initial oil in place, $10^6m^3$ | 8.094 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 6.0 |
| Improved Recovery, % | 17.4 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 1.894 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.347 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.547 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ | Comments: |
|---|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ | |
| ___ | Waterflooding | ___ | ___ | |
| ___ | $CO_2$ | ___ | ___ | |
| ___ | Hydrocarbon | ___ | ___ | |
| ___ | Chemical Flooding | ___ | ___ | |
| ___ | Thermal Techniques | ___ | ___ | |
| ___ | Other: ___ | ___ | ___ | |
| ___ | No Potential | | | |

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Innes
POOL: Frobisher-Alida
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 114 | |
| 1983 | 115 | |
| 1984 | 106 | |
| 1985 | 98 | |
| 1986 | 91 | |
| 1987 | 84 | |
| 1988 | 78 | |
| 1989 | 72 | |
| 1990 | 66 | |
| 1991 | 61 | |
| 1992 | 57 | |
| 1993 | 52 | |
| 1994 | 49 | |
| 1995 | 45 | |
| 1996 | 42 | |
| 1997 | 38 | |
| 1998 | 36 | |
| 1999 | 33 | |
| 2000 | 30 | |
| 2001 | 28 | |
| 2002 | 26 | |
| 2003 | 24 | |
| 2004 | 22 | |
| 2005 | 21 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 586 |
| Average pay, m | 10.67 |
| Rock Volume, $10^4m^3$ | 16 923 |
| Porosity, % | 10.0 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 86.0 |
| Initial oil in place, $10^6m^3$ | 9.477 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary recovery, % | 22.3 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 2.113 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.637 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.476 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Lost Horse Hill
POOL: Frobisher-Alida
UNIT: Vol. Unit #1

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 116 | |
| 1983 | 110 | |
| 1984 | 98 | |
| 1985 | 87 | |
| 1986 | 77 | |
| 1987 | 69 | |
| 1988 | 61 | |
| 1989 | 55 | |
| 1990 | 49 | |
| 1991 | 43 | |
| 1992 | 38 | |
| 1993 | 34 | |
| 1994 | 30 | |
| 1995 | 27 | |
| 1996 | 24 | |
| 1997 | 21 | |
| 1998 | 19 | |
| 1999 | 17 | |
| 2000 | 15 | |
| 2001 | 13 | |
| 2002 | 12 | |
| 2003 | 11 | |
| 2004 | 9 | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 583 |
| Average pay, m | 18.29 |
| Rock Volume, $10^4m^3$ | 10 663 |
| Porosity, % | 15.3 |
| Connate Water, % | 45.0 |
| Shrinkage, % | 91.5 |
| Initial oil in place, $10^6m^3$ | 8.211 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 26.0 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 2.135 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.801 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.334 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ | Comments: |
|---|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ | |
| ___ | Waterflooding | ___ | ___ | |
| ___ | $CO_2$ | ___ | ___ | |
| ___ | Hydrocarbon | ___ | ___ | |
| ___ | Chemical Flooding | ___ | ___ | |
| ___ | Thermal Techniques | ___ | ___ | |
| ___ | Other: ___ | ___ | ___ | |
| ___ | No Potential | | | |

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Midale Central
POOL: Midale
UNIT: Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 735 | |
| 1983 | 712 | |
| 1984 | 665 | |
| 1985 | 622 | |
| 1986 | 582 | |
| 1987 | 544 | |
| 1988 | 509 | |
| 1989 | 475 | |
| 1990 | 445 | |
| 1991 | 416 | |
| 1992 | 389 | |
| 1993 | 363 | |
| 1994 | 340 | |
| 1995 | 318 | |
| 1996 | 297 | |
| 1997 | 278 | |
| 1998 | 260 | |
| 1999 | 243 | |
| 2000 | 227 | |
| 2001 | 212 | |
| 2002 | 198 | |
| 2003 | 186 | |
| 2004 | 174 | |
| 2005 | 162 | |

C. OIL RESERVOIR DATA
For Established Reserves
at 1983-01-01

| | |
|---|---|
| Area, ha | 12 335 |
| Average pay, m | 5.24 |
| Rock Volume, $10^4m^3$ | 64 635 |
| Porosity, % | 16.3 |
| Connate Water, % | 39.4 |
| Shrinkage, % | 89.0 |
| Initial oil in place, $10^6m^3$ | 56.879 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 16.8 |
| Improved Recovery, % | 14.2 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 17.633 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 14.115 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 3.518 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Midale Central
POOL: Midale
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 137 | |
| 1983 | 132 | |
| 1984 | 120 | |
| 1985 | 109 | |
| 1986 | 99 | |
| 1987 | 90 | |
| 1988 | 82 | |
| 1989 | 75 | |
| 1990 | 68 | |
| 1991 | 62 | |
| 1992 | 56 | |
| 1993 | 51 | |
| 1994 | 47 | |
| 1995 | 42 | |
| 1996 | 39 | |
| 1997 | 35 | |
| 1998 | 32 | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 784 |
| Average pay, m | 3.05 |
| Rock Volume, $10^4m^3$ | 8 491 |
| Porosity, % | 17.0 |
| Connate Water, % | 36.0 |
| Shrinkage, % | 89.0 |
| Initial oil in place, $10^6m^3$ | 8.236 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 16.8 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 1.384 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.002 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.382 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Neptune
POOL: Ratcliffe
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 36 | |
| 1983 | 35 | |
| 1984 | 33 | |
| 1985 | 31 | |
| 1986 | 29 | |
| 1987 | 27 | |
| 1988 | 26 | |
| 1989 | 24 | |
| 1990 | 23 | |
| 1991 | 21 | |
| 1992 | 20 | |
| 1993 | 19 | |
| 1994 | 18 | |
| 1995 | 17 | |
| 1996 | 16 | |
| 1997 | 15 | |
| 1998 | 14 | |
| 1999 | 13 | |
| 2000 | 12 | |
| 2001 | 11 | |
| 2002 | 11 | |
| 2003 | 10 | |
| 2004 | 10 | |
| 2005 | 9 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 711 |
| Average pay, m | 4.05 |
| Rock Volume, $10^4m^3$ | 2 880 |
| Porosity, % | 19.0 |
| Connate Water, % | 45.0 |
| Shrinkage, % | 90.0 |
| Initial oil in place, $10^6m^3$ | 2.707 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 14.7 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 0.398 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.213 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.185 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Oungre
POOL: Ratcliffe
UNIT: Vol. Unit #1

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 131 | |
| 1983 | 137 | |
| 1984 | 132 | |
| 1985 | 126 | |
| 1986 | 121 | |
| 1987 | 116 | |
| 1988 | 112 | |
| 1989 | 107 | |
| 1990 | 103 | |
| 1991 | 99 | |
| 1992 | 95 | |
| 1993 | 91 | |
| 1994 | 87 | |
| 1995 | 84 | |
| 1996 | 81 | |
| 1997 | 77 | |
| 1998 | 74 | |
| 1999 | 71 | |
| 2000 | 68 | |
| 2001 | 66 | |
| 2002 | 63 | |
| 2003 | 61 | |
| 2004 | 58 | |
| 2005 | 56 | |

C. OIL RESERVOIR DATA
For Established Reserves
at 1983-01-01

| | |
|---|---|
| Area, ha | 2 784 |
| Average pay, m | 6.52 |
| Rock Volume, $10^4m^3$ | 18 152 |
| Porosity, % | 17.9 |
| Connate Water, % | 45.0 |
| Shrinkage, % | 81.3 |
| Initial oil in place, $10^6m^3$ | 14.521 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 9.0 |
| Improved Recovery, % | 4.8 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 2.004 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.931 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 1.073 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ____ | _____ |
| ___ | Waterflooding | ____ | _____ |
| ___ | $CO_2$ | ____ | _____ |
| ___ | Hydrocarbon | ____ | _____ |
| ___ | Chemical Flooding | ____ | _____ |
| ___ | Thermal Techniques | ____ | _____ |
| ___ | Other: _____ | ____ | _____ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Viewfield
POOL: Frobisher
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 84 | |
| 1983 | 90 | |
| 1984 | 85 | |
| 1985 | 81 | |
| 1986 | 76 | |
| 1987 | 72 | |
| 1988 | 68 | |
| 1989 | 64 | |
| 1990 | 61 | |
| 1991 | 58 | |
| 1992 | 54 | |
| 1993 | 51 | |
| 1994 | 48 | |
| 1995 | 46 | |
| 1996 | 43 | |
| 1997 | 41 | |
| 1998 | 38 | |
| 1999 | 36 | |
| 2000 | 34 | |
| 2001 | 32 | |
| 2002 | 31 | |
| 2003 | 30 | |
| 2004 | 27 | |
| 2005 | 26 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 980 |
| Average pay, m | 13.23 |
| Rock Volume, $10^4m^3$ | 12 965 |
| Porosity, % | 10.4 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 86.0 |
| Initial oil in place, $10^6m^3$ | 7.520 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 13.0 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 0.978 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.447 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.531 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments: A portion of Viewfield non-unit is contained in the "light" gravity category.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Weyburn
POOL: Midale
UNIT: Weyburn Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 1 999 | |
| 1983 | 2 075 | |
| 1984 | 1 961 | |
| 1985 | 1 853 | |
| 1986 | 1 751 | |
| 1987 | 1 655 | |
| 1988 | 1 564 | |
| 1989 | 1 478 | |
| 1990 | 1 397 | |
| 1991 | 1 320 | |
| 1992 | 1 247 | |
| 1993 | 1 178 | |
| 1994 | 1 113 | |
| 1995 | 1 052 | |
| 1996 | 994 | |
| 1997 | 939 | |
| 1998 | 888 | |
| 1999 | 839 | |
| 2000 | 793 | |
| 2001 | 749 | |
| 2002 | 708 | |
| 2003 | 669 | |
| 2004 | 632 | |
| 2005 | 598 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 21 529 |
| Average pay, m | 7.83 |
| Rock Volume, $10^4m^3$ | 168 572 |
| Porosity, % | 17.2 |
| Connate Water, % | 31.7 |
| Shrinkage, % | 89.0 |
| Initial oil in place, $10^6m^3$ | 177.001 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 13.5 |
| Improved Recovery, % | 16.2 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 52.569 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 39.347 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 13.222 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ____ | _____ |
| ___ | Waterflooding | ____ | _____ |
| ___ | $CO_2$ | ____ | _____ |
| ___ | Hydrocarbon | ____ | _____ |
| ___ | Chemical Flooding | ____ | _____ |
| ___ | Thermal Techniques | ____ | _____ |
| ___ | Other: _____ | ____ | _____ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Weyburn
POOL: Midale
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 145 | |
| 1983 | 138 | |
| 1984 | 123 | |
| 1985 | 109 | |
| 1986 | 97 | |
| 1987 | 86 | |
| 1988 | 77 | |
| 1989 | 69 | |
| 1990 | 61 | |
| 1991 | 54 | |
| 1992 | 48 | |
| 1993 | 43 | |
| 1994 | 38 | |
| 1995 | 34 | |
| 1996 | 30 | |
| 1997 | 27 | |
| 1998 | 24 | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 800 |
| Average pay, m | 3.66 |
| Rock Volume, $10^4m^3$ | 10 248 |
| Porosity, % | 17.2 |
| Connate Water, % | 31.0 |
| Shrinkage, % | 89.0 |
| Initial oil in place, $10^6m^3$ | 10.863 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 12.3 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 1.336 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.956 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.380 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Other - Westspur Pipe Line Company
POOL: S.E. Saskatchewan Medium
UNIT:

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 1 046 | |
| 1983 | 1 110 | |
| 1984 | 1 003 | |
| 1985 | 920 | |
| 1986 | 854 | |
| 1987 | 757 | |
| 1988 | 698 | |
| 1989 | 630 | |
| 1990 | 580 | |
| 1991 | 537 | |
| 1992 | 511 | |
| 1993 | 400 | |
| 1994 | 372 | |
| 1995 | 340 | |
| 1996 | 311 | |
| 1997 | 286 | |
| 1998 | 262 | |
| 1999 | 243 | |
| 2000 | 212 | |
| 2001 | 184 | |
| 2002 | 156 | |
| 2003 | 148 | |
| 2004 | 137 | |
| 2005 | 117 | |

C. OIL RESERVOIR DATA
For Established Reserves
at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 97.657 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 16.332 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 11.990 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 4.342 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Total
POOL: S.E. Saskatchewan Medium
UNIT:

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 4 662 | |
| 1983 | 4 762 | |
| 1984 | 4 427 | |
| 1985 | 4 131 | |
| 1986 | 3 866 | |
| 1987 | 3 584 | |
| 1988 | 3 354 | |
| 1989 | 3 123 | |
| 1990 | 2 923 | |
| 1991 | 2 737 | |
| 1992 | 2 577 | |
| 1993 | 2 340 | |
| 1994 | 2 197 | |
| 1995 | 2 056 | |
| 1996 | 1 925 | |
| 1997 | 1 802 | |
| 1998 | 1 690 | |
| 1999 | 1 535 | |
| 2000 | 1 429 | |
| 2001 | 1 330 | |
| 2002 | 1 238 | |
| 2003 | 1 170 | |
| 2004 | 1 098 | |
| 2005 | 1 017 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 401.166 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 98.776 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 73.786 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 24.990 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

## V. BOW RIVER PIPE LINES LTD. - LIGHT

| FIELD | POOL | UNIT |
|---|---|---|
| Dodsland | Viking | Eagle Lake Unit |
| | Viking | Gleneath Unit |
| | Viking | Non-Unit |
| Eureka | Viking | South Eureka Unit |
| Plato | Viking | Non-Unit and Vol. Unit #1 |
| Smiley-Dewar | Viking | Non-Unit |

Other - Bow River Pipe Lines Ltd. - Light

Total - Bow River Pipe Lines Ltd. - Light

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Dodsland
POOL: Viking
UNIT: Eagle Lake Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 123 | |
| 1983 | 127 | |
| 1984 | 119 | |
| 1985 | 112 | |
| 1986 | 106 | |
| 1987 | 99 | |
| 1988 | 93 | |
| 1989 | 88 | |
| 1990 | 82 | |
| 1991 | 77 | |
| 1992 | 73 | |
| 1993 | 69 | |
| 1994 | 65 | |
| 1995 | 61 | |
| 1996 | 57 | |
| 1997 | 54 | |
| 1998 | 50 | |
| 1999 | 47 | |
| 2000 | 44 | |
| 2001 | 42 | |
| 2002 | 39 | |
| 2003 | 37 | |
| 2004 | 35 | |
| 2005 | 33 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 3 772 |
| Average pay, m | 3.02 |
| Rock Volume, $10^4m^3$ | 11 391 |
| Porosity, % | 22.4 |
| Connate Water, % | 45.0 |
| Shrinkage, % | 90.7 |
| Initial oil in place, $10^6m^3$ | 12.758 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 10.0 |
| Improved Recovery, % | 8.5 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 2.360 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.659 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.701 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ✓ | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Dodsland
POOL: Viking
UNIT: Gleneath Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 144 | |
| 1983 | 145 | |
| 1984 | 136 | |
| 1985 | 127 | |
| 1986 | 119 | |
| 1987 | 111 | |
| 1988 | 104 | |
| 1989 | 97 | |
| 1990 | 91 | |
| 1991 | 85 | |
| 1992 | 79 | |
| 1993 | 74 | |
| 1994 | 69 | |
| 1995 | 65 | |
| 1996 | 61 | |
| 1997 | 57 | |
| 1998 | 53 | |
| 1999 | 49 | |
| 2000 | 46 | |
| 2001 | 43 | |
| 2002 | 40 | |
| 2003 | 38 | |
| 2004 | 35 | |
| 2005 | 33 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 3 011 |
| Average pay, m | 2.93 |
| Rock Volume, $10^4m^3$ | 3 822 |
| Porosity, % | 21.7 |
| Connate Water, % | 45.0 |
| Shrinkage, % | 90.7 |
| Initial oil in place, $10^6m^3$ | 9.528 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 11.0 |
| Improved Recovery, % | 13.5 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 2.334 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.587 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.747 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ✓ | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Dodsland
POOL: Viking
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 659 | |
| 1983 | 647 | |
| 1984 | 601 | |
| 1985 | 559 | |
| 1986 | 520 | |
| 1987 | 484 | |
| 1988 | 450 | |
| 1989 | 418 | |
| 1990 | 389 | |
| 1991 | 362 | |
| 1992 | 337 | |
| 1993 | 313 | |
| 1994 | 291 | |
| 1995 | 271 | |
| 1996 | 252 | |
| 1997 | 234 | |
| 1998 | 218 | |
| 1999 | 203 | |
| 2000 | 188 | |
| 2001 | 175 | |
| 2002 | 163 | |
| 2003 | 152 | |
| 2004 | 141 | |
| 2005 | 132 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 13 414 |
| Average pay, m | 2.44 |
| Rock Volume, $10^4m^3$ | 32 730 |
| Porosity, % | 22.4 |
| Connate Water, % | 45.0 |
| Shrinkage, % | 90.7 |
| Initial oil in place, $10^6m^3$ | 36.658 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 11.5 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | * |
| Total Recoverable Oil, $10^6m^3$ | 4.216 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.633 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 2.583 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| ✓ | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments: *Pilot waterflood approved which will commence in 1984.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Eureka
POOL: Viking
UNIT: South Eureka Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 86 | |
| 1983 | 77 | |
| 1984 | 71 | |
| 1985 | 65 | |
| 1986 | 60 | |
| 1987 | 55 | |
| 1988 | 51 | |
| 1989 | 47 | |
| 1990 | 43 | |
| 1991 | 40 | |
| 1992 | 37 | |
| 1993 | 34 | |
| 1994 | 31 | |
| 1995 | 29 | |
| 1996 | 27 | |
| 1997 | 24 | |
| 1998 | 22 | |
| 1999 | 21 | |
| 2000 | 19 | |
| 2001 | 17 | |
| 2002 | 16 | |
| 2003 | 15 | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 522 |
| Average pay, m | 3.69 |
| Rock Volume, $10^4m^3$ | 5 616 |
| Porosity, % | 23.0 |
| Connate Water, % | 42.0 |
| Shrinkage, % | 90.9 |
| Initial oil in place, $10^6m^3$ | 6.796 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 9.50 |
| Improved Recovery, % | 9.5 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 1.292 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.016 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.276 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Plato
POOL: Viking
UNIT: Non-Unit and Vol. Unit #1

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 17 | |
| 1983 | 17 | |
| 1984 | 16 | |
| 1985 | 14 | |
| 1986 | 13 | |
| 1987 | 12 | |
| 1988 | 3 | |
| 1989 | | |
| 1990 | | |
| 1991 | | |
| 1992 | | |
| 1993 | | |
| 1994 | | |
| 1995 | | |
| 1996 | | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | 3 616 |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 4.627 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | * |
| Total Recoverable Oil, $10^6m^3$ | 0.293 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.265 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.028 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ✓ | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments: *Waterflood in unit

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Smiley-Dewar
POOL: Viking
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 178 | |
| 1983 | 193 | |
| 1984 | 182 | |
| 1985 | 172 | |
| 1986 | 163 | |
| 1987 | 154 | |
| 1988 | 145 | |
| 1989 | 137 | |
| 1990 | 130 | |
| 1991 | 123 | |
| 1992 | 116 | |
| 1993 | 109 | |
| 1994 | 103 | |
| 1995 | 98 | |
| 1996 | 92 | |
| 1997 | 87 | |
| 1998 | 82 | |
| 1999 | 78 | |
| 2000 | 74 | |
| 2001 | 70 | |
| 2002 | 66 | |
| 2003 | 62 | |
| 2004 | 59 | |
| 2005 | 55 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 3 755 |
| Average pay, m | 4.42 |
| Rock Volume, $10^4 m^3$ | 16 597 |
| Porosity, % | 24.0 |
| Connate Water, % | 45.0 |
| Shrinkage, % | 91.7 |
| Initial oil in place, $10^6 m^3$ | 20.082 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 16.7 |
| Improved Recovery, % | 7.9 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6 m^3$ | 4.940 |
| Cumulative oil production to 1983-01-01, $10^6 m^3$ | 3.860 |
| Remaining Established Reserves at 1983-01-01, $10^6 m^3$ | 1.080 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6 m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Other - Bow River Pipe Lines Ltd.
POOL: Light
UNIT:

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 124 | |
| 1983 | 162 | |
| 1984 | 141 | |
| 1985 | 126 | |
| 1986 | 110 | |
| 1987 | 98 | |
| 1988 | 55 | |
| 1989 | 50 | |
| 1990 | 47 | |
| 1991 | 42 | |
| 1992 | 24 | |
| 1993 | 20 | |
| 1994 | 18 | |
| 1995 | 16 | |
| 1996 | 11 | |
| 1997 | 10 | |
| 1998 | 6 | |
| 1999 | 6 | |
| 2000 | 5 | |
| 2001 | 4 | |
| 2002 | 4 | |
| 2003 | 4 | |
| 2004 | 3 | |
| 2005 | 3 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 26.337 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 2.072 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.729 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.343 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | |
| ___ | Waterflooding | ___ | |
| ___ | $CO_2$ | ___ | |
| ___ | Hydrocarbon | ___ | |
| ___ | Chemical Flooding | ___ | |
| ___ | Thermal Techniques | ___ | |
| ___ | Other: | ___ | |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Total - Bow River Pipe Lines Ltd.
POOL: Light
UNIT:

B. PRODUCTIVE CAPACITY FORECAST

$m^3$ per day

| YEAR | From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 1 331 | |
| 1983 | 1 368 | |
| 1984 | 1 266 | |
| 1985 | 1 175 | |
| 1986 | 1 091 | |
| 1987 | 1 013 | |
| 1988 | 910 | |
| 1989 | 840 | |
| 1990 | 782 | |
| 1991 | 729 | |
| 1992 | 666 | |
| 1993 | 619 | |
| 1994 | 577 | |
| 1995 | 540 | |
| 1996 | 500 | |
| 1997 | 466 | |
| 1998 | 431 | |
| 1999 | 404 | |
| 2000 | 376 | |
| 2001 | 351 | |
| 2002 | 328 | |
| 2003 | 308 | |
| 2004 | 273 | |
| 2005 | 256 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 116.786 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 17.507 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 11.750 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 5.757 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

## VI. WESTSPUR PIPE LINE COMPANY - LIGHT

| FIELD | POOL | UNIT |
|---|---|---|
| Alameda | Midale | East Unit |
| Alida East | Alida | Alida Unit |
| Alida West | Alida | Non-Unit |
| Browning | Frobisher-Alida | Non-Unit |
| Carnduff | Midale | East Unit |
| Elmore | Frobisher | Vol. Unit #1 |
| Flat Lake | Ratcliffe | Vol. Unit #1 |
| Freda Lake | Ratcliffe | Non-Unit |
| Hastings | Frobisher | Non-Unit |
| Ingoldsby | Frobisher-Alida | Vol. Unit |
| Kenosee | Tilston | Vol. Unit |
| Parkman | Tilston-Souris Valley | Non-Unit |
| Queensdale East | Frobisher-Alida | Non-Unit |
| Rosebank | Frobisher-Alida | Vol. Unit #1 |
| Sherwood | Frobisher | Non-Unit |
| Skinner Lake | Ratcliffe | Non-Unit |
| Star Valley | Frobisher-Alida | Non-Unit |
| Steelman | Midale | Unit 1A |
| | Midale | Unit II |
| | Midale | Unit III |
| | Midale | Unit IV |
| | Midale | Unit VI |
| | Midale | Non-Units |
| Viewfield | Frobisher-Alida | Vol. Unit #1 |
| Willmar | Frobisher-Alida | Non-Unit |
| Workman | Frobisher-Alida | Non-Unit |

Other - Westspur Pipe Line Company - Light

Total - Westspur Pipe Line Company - Light

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Alameda
POOL: Midale
UNIT: East Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 58 | |
| 1983 | 76 | |
| 1984 | 72 | |
| 1985 | 68 | |
| 1986 | 65 | |
| 1987 | 62 | |
| 1988 | 59 | |
| 1989 | 56 | |
| 1990 | 53 | |
| 1991 | 50 | |
| 1992 | 48 | |
| 1993 | 45 | |
| 1994 | 43 | |
| 1995 | 41 | |
| 1996 | 39 | |
| 1997 | 37 | |
| 1998 | 35 | |
| 1999 | 33 | |
| 2000 | 32 | |
| 2001 | 30 | |
| 2002 | 29 | |
| 2003 | 27 | |
| 2004 | 26 | |
| 2005 | 25 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 363 |
| Average pay, m | 2.77 |
| Rock Volume, $10^4m^3$ | 6 546 |
| Porosity, % | 17.2 |
| Connate Water, % | 40.8 |
| Shrinkage, % | 72.7 |
| Initial oil in place, $10^6m^3$ | 4.844 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 16.0 |
| Improved Recovery, % | 21.5 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 1.816 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.386 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.430 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Alida East
POOL: Alida
UNIT: Alida Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 51 | |
| 1983 | 65 | |
| 1984 | 61 | |
| 1985 | 57 | |
| 1986 | 53 | |
| 1987 | 50 | |
| 1988 | 46 | |
| 1989 | 43 | |
| 1990 | 41 | |
| 1991 | 38 | |
| 1992 | 36 | |
| 1993 | 33 | |
| 1994 | 31 | |
| 1995 | 29 | |
| 1996 | 27 | |
| 1997 | 25 | |
| 1998 | 24 | |
| 1999 | 22 | |
| 2000 | 21 | |
| 2001 | 19 | |
| 2002 | 18 | |
| 2003 | 17 | |
| 2004 | 16 | |
| 2005 | 15 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 619 |
| Average pay, m | 7.99 |
| Rock Volume, $10^4m^3$ | 12 936 |
| Porosity, % | 16.5 |
| Connate Water, % | 30.0 |
| Shrinkage, % | 75.0 |
| Initial oil in place, $10^6m^3$ | 11.254 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 17.70 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 1.992 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.711 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.281 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

## CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Alida West
POOL: Alida
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 76 | |
| 1983 | 83 | |
| 1984 | 77 | |
| 1985 | 70 | |
| 1986 | 65 | |
| 1987 | 60 | |
| 1988 | 55 | |
| 1989 | 50 | |
| 1990 | 46 | |
| 1991 | 43 | |
| 1992 | 39 | |
| 1993 | 36 | |
| 1994 | 33 | |
| 1995 | 31 | |
| 1996 | 28 | |
| 1997 | 26 | |
| 1998 | 24 | |
| 1999 | 22 | |
| 2000 | 20 | |
| 2001 | 19 | |
| 2002 | 17 | |
| 2003 | 16 | |
| 2004 | 14 | |
| 2005 | 13 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 263 |
| Average pay, m | 9.75 |
| Rock Volume, $10^4m^3$ | 12 314 |
| Porosity, % | 14.3 |
| Connate Water, % | 31.0 |
| Shrinkage, % | 75.0 |
| Initial oil in place, $10^6m^3$ | 9.113 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 22.0 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 2.005 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.663 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.342 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ | Comments: |
|---|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ | |
| ___ | Waterflooding | ___ | ___ | |
| ___ | $CO_2$ | ___ | ___ | |
| ___ | Hydrocarbon | ___ | ___ | |
| ___ | Chemical Flooding | ___ | ___ | |
| ___ | Thermal Techniques | ___ | ___ | |
| ___ | Other: ___ | ___ | ___ | |
| ___ | No Potential | | | |

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Browning
POOL: Frobisher-Alida
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 59 | |
| 1983 | 77 | |
| 1984 | 72 | |
| 1985 | 67 | |
| 1986 | 62 | |
| 1987 | 58 | |
| 1988 | 54 | |
| 1989 | 50 | |
| 1990 | 46 | |
| 1991 | 43 | |
| 1992 | 40 | |
| 1993 | 37 | |
| 1994 | 35 | |
| 1995 | 32 | |
| 1996 | 30 | |
| 1997 | 28 | |
| 1998 | 26 | |
| 1999 | 24 | |
| 2000 | 22 | |
| 2001 | 21 | |
| 2002 | 19 | |
| 2003 | 18 | |
| 2004 | 17 | |
| 2005 | 16 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 392 |
| Average pay, m | 7.16 |
| Rock Volume, $10^4m^3$ | 9 967 |
| Porosity, % | 13.0 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 75.0 |
| Initial oil in place, $10^6m^3$ | 6.279 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 17.0 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 1.067 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.733 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.334 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Carnduff
POOL: Midale
UNIT: East Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 71 | |
| 1983 | 82 | |
| 1984 | 75 | |
| 1985 | 69 | |
| 1986 | 64 | |
| 1987 | 59 | |
| 1988 | 54 | |
| 1989 | 50 | |
| 1990 | 46 | |
| 1991 | 42 | |
| 1992 | 39 | |
| 1993 | 36 | |
| 1994 | 33 | |
| 1995 | 30 | |
| 1996 | | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 5 568 |
| Average pay, m | 1.80 |
| Rock Volume, $10^4m^3$ | 10 022 |
| Porosity, % | 14.4 |
| Connate Water, % | 30.0 |
| Shrinkage, % | 75.0 |
| Initial oil in place, $10^6m^3$ | 7.617 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 15.0 |
| Improved Recovery, % | 21.5 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 2.781 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 2.553 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.228 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.

SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Elmore
POOL: Frobisher
UNIT: Vor. Unit #1

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 94 | |
| 1983 | 116 | |
| 1984 | 107 | |
| 1985 | 97 | |
| 1986 | 89 | |
| 1987 | 82 | |
| 1988 | 75 | |
| 1989 | 68 | |
| 1990 | 63 | |
| 1991 | 57 | |
| 1992 | 52 | |
| 1993 | 48 | |
| 1994 | 44 | |
| 1995 | 40 | |
| 1996 | 37 | |
| 1997 | 34 | |
| 1998 | 31 | |
| 1999 | 28 | |
| 2000 | 26 | |
| 2001 | 24 | |
| 2002 | 22 | |
| 2003 | 20 | |
| 2004 | 18 | |
| 2005 | 16 | |

C. OIL RESERVOIR DATA
For Established Reserves
at 1983-01-01

| | |
|---|---|
| Area, ha | 874 |
| Average pay, m | 7.01 |
| Rock Volume, $10^4m^3$ | 6 127 |
| Porosity, % | 15.9 |
| Connate Water, % | 41.1 |
| Shrinkage, % | 86.1 |
| Initial oil in place, $10^6m^3$ | 4.963 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 28.0 |
| Improved Recovery, % | 12.7 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 2.020 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.556 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.464 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Flat Lake
POOL: Ratcliffe
UNIT: Vol. Unit #1

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 153 | |
| 1983 | 169 | |
| 1984 | 157 | |
| 1985 | 145 | |
| 1986 | 134 | |
| 1987 | 124 | |
| 1988 | 115 | |
| 1989 | 106 | |
| 1990 | 98 | |
| 1991 | 91 | |
| 1992 | 84 | |
| 1993 | 78 | |
| 1994 | 72 | |
| 1995 | 66 | |
| 1996 | 61 | |
| 1997 | 57 | |
| 1998 | 52 | |
| 1999 | 49 | |
| 2000 | 45 | |
| 2001 | 42 | |
| 2002 | 38 | |
| 2003 | 36 | |
| 2004 | 33 | |
| 2005 | 30 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 428 |
| Average pay, m | 5.64 |
| Rock Volume, $10^4m^3$ | 13 694 |
| Porosity, % | 14.1 |
| Connate Water, % | 49.2 |
| Shrinkage, % | 83.4 |
| Initial oil in place, $10^6m^3$ | 8.216 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 10.0 |
| Improved Recovery, % | 15.3 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 2.079 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.314 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.765 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ✓ | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments: Three infill wells were placed on production in 1983 which were drilled in 1980 and not included in this producibility forecast.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Freda Lake
POOL: Ratcliffe
UNIT: Non-Unit

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B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 43 | |
| 1983 | 47 | |
| 1984 | 43 | |
| 1985 | 39 | |
| 1986 | 36 | |
| 1987 | 33 | |
| 1988 | 30 | |
| 1989 | 27 | |
| 1990 | 25 | |
| 1991 | 23 | |
| 1992 | 21 | |
| 1993 | 19 | |
| 1994 | 17 | |
| 1995 | 16 | |
| 1996 | 15 | |
| 1997 | 13 | |
| 1998 | 12 | |
| 1999 | 11 | |
| 2000 | 10 | |
| 2001 | 9 | |
| 2002 | 9 | |
| 2003 | 8 | |
| 2004 | 7 | |
| 2005 | 7 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 068 |
| Average pay, m | 4.15 |
| Rock Volume, $10^4m^3$ | 4 432 |
| Porosity, % | 24.9 |
| Connate Water, % | 45.0 |
| Shrinkage, % | 90.0 |
| Initial oil in place, $10^6m^3$ | 5.452 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 9.5 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 0.518 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.346 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.172 |

---

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ✓ | Infill Drilling | | |
| ✓ | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Hastings
POOL: Frobisher
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 76 | |
| 1983 | 75 | |
| 1984 | 70 | |
| 1985 | 65 | |
| 1986 | 60 | |
| 1987 | 56 | |
| 1988 | 52 | |
| 1989 | 49 | |
| 1990 | 45 | |
| 1991 | 42 | |
| 1992 | 39 | |
| 1993 | 36 | |
| 1994 | 34 | |
| 1995 | 31 | |
| 1996 | 29 | |
| 1997 | 27 | |
| 1998 | 25 | |
| 1999 | 23 | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 909 |
| Average pay, m | 7.07 |
| Rock Volume, $10^4m^3$ | 13 497 |
| Porosity, % | 13.7 |
| Connate Water, % | 40.0 |
| Shrinkage, % | 75.0 |
| Initial oil in place, $10^6m^3$ | 8.368 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 22.2 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 1.858 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.597 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.261 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | |
| ___ | Waterflooding | ___ | |
| ___ | $CO_2$ | ___ | |
| ___ | Hydrocarbon | ___ | |
| ___ | Chemical Flooding | ___ | |
| ___ | Thermal Techniques | ___ | |
| ___ | Other: | ___ | |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.

SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Ingoldsby
POOL: Frobisher-Alida
UNIT: Vol. Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 75 | |
| 1983 | 97 | |
| 1984 | 92 | |
| 1985 | 87 | |
| 1986 | 83 | |
| 1987 | 78 | |
| 1988 | 75 | |
| 1989 | 72 | |
| 1990 | 69 | |
| 1991 | 66 | |
| 1992 | 63 | |
| 1993 | 61 | |
| 1994 | 59 | |
| 1995 | 57 | |
| 1996 | 55 | |
| 1997 | 53 | |
| 1998 | 52 | |
| 1999 | 50 | |
| 2000 | 49 | |
| 2001 | 48 | |
| 2002 | 46 | |
| 2003 | 45 | |
| 2004 | 44 | |
| 2005 | 43 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 1 214 |
| Average pay, m | 8.69 |
| Rock Volume, $10^4 m^3$ | 10 550 |
| Porosity, % | 13.0 |
| Connate Water, % | 30.0 |
| Shrinkage, % | 86.6 |
| Initial oil in place, $10^6 m^3$ | 8.334 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 35.0 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6 m^3$ | 2.917 |
| Cumulative oil production to 1983-01-01, $10^6 m^3$ | 2.080 |
| Remaining Established Reserves at 1983-01-01, $10^6 m^3$ | 0.837 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6 m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Kenosee
POOL: Tilston
UNIT: Vol. Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 146 | |
| 1983 | 124 | |
| 1984 | 106 | |
| 1985 | 93 | |
| 1986 | 83 | |
| 1987 | 75 | |
| 1988 | 68 | |
| 1989 | 62 | |
| 1990 | 57 | |
| 1991 | 53 | |
| 1992 | 50 | |
| 1993 | 47 | |
| 1994 | 44 | |
| 1995 | 41 | |
| 1996 | 39 | |
| 1997 | 37 | |
| 1998 | 35 | |
| 1999 | 34 | |
| 2000 | 32 | |
| 2001 | 31 | |
| 2002 | 30 | |
| 2003 | 29 | |
| 2004 | 28 | |
| 2005 | 27 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 996 |
| Average pay, m | 4.88 |
| Rock Volume, $10^4 m^3$ | 4 860 |
| Porosity, % | 16.0 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 80.0 |
| Initial oil in place, $10^6 m^3$ | 4.034 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 51.0 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6 m^3$ | 2.057 |
| Cumulative oil production to 1983-01-01, $10^6 m^3$ | 1.657 |
| Remaining Established Reserves at 1983-01-01, $10^6 m^3$ | 0.400 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6 m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments: Anticipated 1983 production is better than forecast. A revision to producibility and reserves may be required when reserve calculations are done for 1983.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Parkman
POOL: Tilston-Souris Valley
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 178 | |
| 1983 | 137 | |
| 1984 | 123 | |
| 1985 | 111 | |
| 1986 | 100 | |
| 1987 | 90 | |
| 1988 | 81 | |
| 1989 | 73 | |
| 1990 | 66 | |
| 1991 | 59 | |
| 1992 | 53 | |
| 1993 | 48 | |
| 1994 | 43 | |
| 1995 | | |
| 1996 | | |
| 1997 | | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 3 561 |
| Average pay, m | 10.36 |
| Rock Volume, $10^4m^3$ | 36 892 |
| Porosity, % | 11.9 |
| Connate Water, % | 40.0 |
| Shrinkage, % | 90.0 |
| Initial oil in place, $10^6m^3$ | 23.611 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 13.1 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 3.093 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 2.735 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.358 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ✓ | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments: Anticipated 1983 production is better than forecast. A revision to the producibility and reserves may be required when reserve calculations are done for 1983.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Queensdale East
POOL: Frobisher-Alida
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 253 | |
| 1983 | 307 | |
| 1984 | 283 | |
| 1985 | 260 | |
| 1986 | 239 | |
| 1987 | 220 | |
| 1988 | 203 | |
| 1989 | 186 | |
| 1990 | 172 | |
| 1991 | 158 | |
| 1992 | 145 | |
| 1993 | 133 | |
| 1994 | 123 | |
| 1995 | 113 | |
| 1996 | 104 | |
| 1997 | 96 | |
| 1998 | 88 | |
| 1999 | 81 | |
| 2000 | 74 | |
| 2001 | 69 | |
| 2002 | 63 | |
| 2003 | 58 | |
| 2004 | 53 | |
| 2005 | 49 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 574 |
| Average pay, m | 6.71 |
| Rock Volume, $10^4 m^3$ | 17 272 |
| Porosity, % | 11.7 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 84.6 |
| Initial oil in place, $10^6 m^3$ | 11.054 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 45.5 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6 m^3$ | 5.030 |
| Cumulative oil production to 1983-01-01, $10^6 m^3$ | 3.740 |
| Remaining Established Reserves at 1983-01-01, $10^6 m^3$ | 1.290 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6 m^3$ |
|---|---|---|---|
| ✓ | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments: Anticipated 1983 production is better than forecast. A revision may be required when reserve calculations are done for 1983.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Rosebank
POOL: Frobisher-Alida
UNIT: Vol. Unit #1

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 82 | |
| 1983 | 97 | |
| 1984 | 89 | |
| 1985 | 83 | |
| 1986 | 77 | |
| 1987 | 72 | |
| 1988 | 68 | |
| 1989 | 64 | |
| 1990 | 60 | |
| 1991 | 57 | |
| 1992 | 55 | |
| 1993 | 52 | |
| 1994 | 50 | |
| 1995 | 48 | |
| 1996 | 46 | |
| 1997 | 44 | |
| 1998 | 42 | |
| 1999 | 41 | |
| 2000 | 39 | |
| 2001 | 38 | |
| 2002 | 37 | |
| 2003 | 36 | |
| 2004 | 34 | |
| 2005 | 33 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 971 |
| Average pay, m | 13.72 |
| Rock Volume, $10^4m^3$ | 13 322 |
| Porosity, % | 12.5 |
| Connate Water, % | 30.0 |
| Shrinkage, % | 74.5 |
| Initial oil in place, $10^6m^3$ | 8.659 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 45.5 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 3.940 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 3.376 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.564 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ | Comments: |
|---|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ | |
| ___ | Waterflooding | ___ | ___ | |
| ___ | $CO_2$ | ___ | ___ | |
| ___ | Hydrocarbon | ___ | ___ | |
| ___ | Chemical Flooding | ___ | ___ | |
| ___ | Thermal Techniques | ___ | ___ | |
| ___ | Other: ___ | ___ | ___ | |
| ___ | No Potential | | | |

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Sherwood
POOL: Frobisher
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 71 | |
| 1983 | 91 | |
| 1984 | 81 | |
| 1985 | 73 | |
| 1986 | 66 | |
| 1987 | 59 | |
| 1988 | 54 | |
| 1989 | 48 | |
| 1990 | 43 | |
| 1991 | 39 | |
| 1992 | 35 | |
| 1993 | 32 | |
| 1994 | 28 | |
| 1995 | 26 | |
| 1996 | 23 | |
| 1997 | 21 | |
| 1998 | 19 | |
| 1999 | 17 | |
| 2000 | 15 | |
| 2001 | 14 | |
| 2002 | 12 | |
| 2003 | 11 | |
| 2004 | 10 | |
| 2005 | 9 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 511 |
| Average pay, m | 7.77 |
| Rock Volume, $10^4m^3$ | 3 970 |
| Porosity, % | 15.8 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 86.0 |
| Initial oil in place, $10^6m^3$ | 3.494 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 53.0 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 1.852 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 1.547 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.305 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Skinner Lake
POOL: Ratcliffe
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 28 | |
| 1983 | 33 | |
| 1984 | 31 | |
| 1985 | 29 | |
| 1986 | 27 | |
| 1987 | 25 | |
| 1988 | 23 | |
| 1989 | 22 | |
| 1990 | 20 | |
| 1991 | 19 | |
| 1992 | 17 | |
| 1993 | 16 | |
| 1994 | 15 | |
| 1995 | 14 | |
| 1996 | 13 | |
| 1997 | 12 | |
| 1998 | 11 | |
| 1999 | 10 | |
| 2000 | 10 | |
| 2001 | 9 | |
| 2002 | 8 | |
| 2003 | 8 | |
| 2004 | 7 | |
| 2005 | 7 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 647 |
| Average pay, m | 4.36 |
| Rock Volume, $10^4m^3$ | 2 821 |
| Porosity, % | 24.0 |
| Connate Water, % | 45.0 |
| Shrinkage, % | 90.0 |
| Initial oil in place, $10^6m^3$ | 3.357 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 10.0 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 0.336 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.182 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.154 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other:_____ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Star Valley
POOL: Frobisher-Alida
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 114 | |
| 1983 | 112 | |
| 1984 | 105 | |
| 1985 | 99 | |
| 1986 | 93 | |
| 1987 | 87 | |
| 1988 | 82 | |
| 1989 | 77 | |
| 1990 | 73 | |
| 1991 | 68 | |
| 1992 | 64 | |
| 1993 | 60 | |
| 1994 | 57 | |
| 1995 | 53 | |
| 1996 | 50 | |
| 1997 | 47 | |
| 1998 | 44 | |
| 1999 | 42 | |
| 2000 | 39 | |
| 2001 | 37 | |
| 2002 | 35 | |
| 2003 | 33 | |
| 2004 | 31 | |
| 2005 | 29 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 761 |
| Average pay, m | 6.93 |
| Rock Volume, $10^4m^3$ | 5 274 |
| Porosity, % | 15.0 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 75.0 |
| Initial oil in place, $10^6m^3$ | 3.850 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 41.0 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 1.578 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.997 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.581 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ✓ | Infill Drilling | | |
| | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments: The anticipated 1983 production is better than forecast. Infill wells drilled since 1980 were not fully appreciated. A revision may be required for 1983.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Steelman
POOL: Midale
UNIT: Unit 1A

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 286 | |
| 1983 | 344 | |
| 1984 | 317 | |
| 1985 | 291 | |
| 1986 | 268 | |
| 1987 | 246 | |
| 1988 | 227 | |
| 1989 | 209 | |
| 1990 | 192 | |
| 1991 | 177 | |
| 1992 | 163 | |
| 1993 | 150 | |
| 1994 | 138 | |
| 1995 | 127 | |
| 1996 | 116 | |
| 1997 | 107 | |
| 1998 | 99 | |
| 1999 | 91 | |
| 2000 | 83 | |
| 2001 | 77 | |
| 2002 | 71 | |
| 2003 | 65 | |
| 2004 | 60 | |
| 2005 | 55 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, | 5 463 |
| Average pay, m | 4.21 |
| Rock Volume, $10^4m^3$ | 22 999 |
| Porosity, % | 17.1 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 72.0 |
| Initial oil in place, $10^6m^3$ | 18.399 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 16.0 |
| Improved Recovery, % | 35.0 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 9.384 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 7.876 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 1.508 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ | Comments: |
|---|---|---|---|---|
| ___ | Infill Drilling | ___ | _____ | |
| ___ | Waterflooding | ___ | _____ | |
| ___ | $CO_2$ | ___ | _____ | |
| ___ | Hydrocarbon | ___ | _____ | |
| ___ | Chemical Flooding | ___ | _____ | |
| ___ | Thermal Techniques | ___ | _____ | |
| ___ | Other: _____ | ___ | _____ | |
| ___ | No Potential | | | |

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Steelman
POOL: Midale
UNIT: Unit II

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 207 | |
| 1983 | 244 | |
| 1984 | 224 | |
| 1985 | 203 | |
| 1986 | 183 | |
| 1987 | 166 | |
| 1988 | 150 | |
| 1989 | 136 | |
| 1990 | 123 | |
| 1991 | 111 | |
| 1992 | 101 | |
| 1993 | 91 | |
| 1994 | 82 | |
| 1995 | 75 | |
| 1996 | 68 | |
| 1997 | 61 | |
| 1998 | 55 | |
| 1999 | 50 | |
| 2000 | 45 | |
| 2001 | 41 | |
| 2002 | 37 | |
| 2003 | 34 | |
| 2004 | 30 | |
| 2005 | 28 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 072 |
| Average pay, m | 9.45 |
| Rock Volume, $10^4m^3$ | 19 580 |
| Porosity, % | 16.5 |
| Connate Water, % | 28.8 |
| Shrinkage, % | 72.0 |
| Initial oil in place, $10^6m^3$ | 16.643 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 23.0 |
| Improved Recovery, % | 26.8 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 8.288 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 7.364 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.924 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Steelman
POOL: Midale
UNIT: Unit III

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 140 | |
| 1983 | 166 | |
| 1984 | 151 | |
| 1985 | 137 | |
| 1986 | 125 | |
| 1987 | 114 | |
| 1988 | 104 | |
| 1989 | 94 | |
| 1990 | 86 | |
| 1991 | 78 | |
| 1992 | 71 | |
| 1993 | 65 | |
| 1994 | 59 | |
| 1995 | 53 | |
| 1996 | 49 | |
| 1997 | 44 | |
| 1998 | 40 | |
| 1999 | 37 | |
| 2000 | 33 | |
| 2001 | 30 | |
| 2002 | 28 | |
| 2003 | 25 | |
| 2004 | 23 | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 833 |
| Average pay, m | 4.57 |
| Rock Volume, $10^4m^3$ | 12 947 |
| Porosity, % | 18.9 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 72.0 |
| Initial oil in place, $10^6m^3$ | 11.393 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 16.0 |
| Improved Recovery, % | 22.5 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 4.386 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 3.768 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.618 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Steelman
POOL: Midale
UNIT: Unit IV

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 258 | |
| 1983 | 285 | |
| 1984 | 260 | |
| 1985 | 236 | |
| 1986 | 215 | |
| 1987 | 196 | |
| 1988 | 178 | |
| 1989 | 162 | |
| 1990 | 147 | |
| 1991 | 134 | |
| 1992 | 122 | |
| 1993 | 111 | |
| 1994 | 101 | |
| 1995 | 92 | |
| 1996 | 84 | |
| 1997 | 76 | |
| 1998 | 69 | |
| 1999 | 63 | |
| 2000 | 57 | |
| 2001 | 52 | |
| 2002 | 48 | |
| 2003 | 43 | |
| 2004 | 39 | |
| 2005 | 36 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 5 277 |
| Average pay, m | 3.29 |
| Rock Volume, $10^4m^3$ | 17 361 |
| Porosity, % | 16.4 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 72.0 |
| Initial oil in place, $10^6m^3$ | 13.368 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 15.0 |
| Improved Recovery, % | 26.2 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 5.507 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 4.434 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 1.073 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.

SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Steelman
POOL: Midale
UNIT: Unit VI

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 184 | |
| 1983 | 216 | |
| 1984 | 192 | |
| 1985 | 171 | |
| 1986 | 152 | |
| 1987 | 136 | |
| 1988 | 121 | |
| 1989 | 107 | |
| 1990 | 96 | |
| 1991 | 85 | |
| 1992 | 76 | |
| 1993 | 67 | |
| 1994 | 60 | |
| 1995 | 53 | |
| 1996 | 47 | |
| 1997 | 42 | |
| 1998 | 38 | |
| 1999 | 33 | |
| 2000 | 30 | |
| 2001 | 27 | |
| 2002 | 24 | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves
at 1983-01-01

| | |
|---|---|
| Area, ha | 6 685 |
| Average pay, m | 5.12 |
| Rock Volume, $10^4m^3$ | 34 227 |
| Porosity, % | 15.5 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 72.0 |
| Initial oil in place, $10^6m^3$ | 24.986 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 16.0 |
| Improved Recovery, % | 20.5 |
| Improved Recovery Mechanism | Waterflood |
| Total Recoverable Oil, $10^6m^3$ | 9.120 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 8.454 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.666 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Steelman
POOL: Midale
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 190 | |
| 1983 | 169 | |
| 1984 | 154 | |
| 1985 | 140 | |
| 1986 | 127 | |
| 1987 | 116 | |
| 1988 | 106 | |
| 1989 | 96 | |
| 1990 | 87 | |
| 1991 | 80 | |
| 1992 | 72 | |
| 1993 | 66 | |
| 1994 | 60 | |
| 1995 | 54 | |
| 1996 | 50 | |
| 1997 | 45 | |
| 1998 | 41 | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 3 484 |
| Average pay, m | 4.21 |
| Rock Volume, $10^4m^3$ | 14 668 |
| Porosity, % | 10.4 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 72.0 |
| Initial oil in place, $10^6m^3$ | 7.187 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 15.0 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 1.078 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.563 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.515 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| | Infill Drilling | | |
| ✓ | Waterflooding | | |
| | $CO_2$ | | |
| | Hydrocarbon | | |
| | Chemical Flooding | | |
| | Thermal Techniques | | |
| | Other: | | |
| | No Potential | | |

Comments: A small area on the north side of the pool has had a waterflood implemented in 1983. Another neighbouring area is being assessed for a waterflood as well. Reserves will be adjusted in 1983 to account for the increased reserve potential.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.

SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Viewfield
POOL: Frobisher-Alida
UNIT: Vol. Unit #1

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 35 | |
| 1983 | 48 | |
| 1984 | 39 | |
| 1985 | 31 | |
| 1986 | 25 | |
| 1987 | 20 | |
| 1988 | 16 | |
| 1989 | 13 | |
| 1990 | 10 | |
| 1991 | 8 | |
| 1992 | 7 | |
| 1993 | 5 | |
| 1994 | 4 | |
| 1995 | 3 | |
| 1996 | 3 | |
| 1997 | 2 | |
| 1998 | | |
| 1999 | | |
| 2000 | | |
| 2001 | | |
| 2002 | | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 129 |
| Average pay, m | 17.07 |
| Rock Volume, $10^4m^3$ | 2 202 |
| Porosity, % | 12.0 |
| Connate Water, % | 35.0 |
| Shrinkage, % | 86.0 |
| Initial oil in place, $10^6m^3$ | 1.475 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 12.5 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | - |
| Total Recoverable Oil, $10^6m^3$ | 0.184 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.098 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.086 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Willmar
POOL: Frob-Alida
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 163 | |
| 1983 | 175 | |
| 1984 | 160 | |
| 1985 | 146 | |
| 1986 | 134 | |
| 1987 | 123 | |
| 1988 | 112 | |
| 1989 | 103 | |
| 1990 | 94 | |
| 1991 | 86 | |
| 1992 | 79 | |
| 1993 | 72 | |
| 1994 | 66 | |
| 1995 | 60 | |
| 1996 | 55 | |
| 1997 | 50 | |
| 1998 | 46 | |
| 1999 | 42 | |
| 2000 | 39 | |
| 2001 | 35 | |
| 2002 | 32 | |
| 2003 | | |
| 2004 | | |
| 2005 | | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | 2 444 |
| Average pay, m | 6.55 |
| Rock Volume, $10^4 m^3$ | 16 008 |
| Porosity, % | 12.9 |
| Connate Water, % | 30.0 |
| Shrinkage, % | 78.0 |
| Initial oil in place, $10^6 m^3$ | 11.206 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 28.0 |
| Improved Recovery, % | 0.5 |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6 m^3$ | 3.194 |
| Cumulative oil production to 1983-01-01, $10^6 m^3$ | 2.534 |
| Remaining Established Reserves at 1983-01-01, $10^6 m^3$ | 0.660 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6 m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | | |
| ___ | Waterflooding | | |
| ___ | $CO_2$ | | |
| ___ | Hydrocarbon | | |
| ___ | Chemical Flooding | | |
| ___ | Thermal Techniques | | |
| ___ | Other: | | |
| ___ | No Potential | | |

Comments: Anticipated 1983 production is better than forecast. A revision may be required when reserve calculations are done for 1983.

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.

SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Workman
POOL: Frobisher
UNIT: Non-Unit

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 103 | |
| 1983 | 127 | |
| 1984 | 118 | |
| 1985 | 109 | |
| 1986 | 101 | |
| 1987 | 93 | |
| 1988 | 86 | |
| 1989 | 80 | |
| 1990 | 74 | |
| 1991 | 68 | |
| 1992 | 63 | |
| 1993 | 58 | |
| 1994 | 54 | |
| 1995 | 50 | |
| 1996 | 46 | |
| 1997 | 43 | |
| 1998 | 39 | |
| 1999 | 37 | |
| 2000 | 34 | |
| 2001 | 31 | |
| 2002 | 29 | |
| 2003 | 27 | |
| 2004 | 25 | |
| 2005 | 23 | |

C. OIL RESERVOIR DATA
For Established Reserves
at 1983-01-01

| | |
|---|---|
| Area, ha | 1 989 |
| Average pay, m | 5.57 |
| Rock Volume, $10^4m^3$ | 11 079 |
| Porosity, % | 12.5 |
| Connate Water, % | 42.1 |
| Shrinkage, % | 84.5 |
| Initial oil in place, $10^6m^3$ | 6.758 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 21.0 |
| Improved Recovery, % | 0.0 |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 1.419 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 0.880 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 0.539 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | | |
| ___ | Waterflooding | | |
| ___ | $CO_2$ | | |
| ___ | Hydrocarbon | | |
| ___ | Chemical Flooding | | |
| ___ | Thermal Techniques | | |
| ___ | Other: | | |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Other - Westspur Pipe Line Company
POOL: S.E. Saskatchewan Light
UNIT:

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 1 365 | |
| 1983 | 1 992 | |
| 1984 | 1 814 | |
| 1985 | 1 760 | |
| 1986 | 1 490 | |
| 1987 | 1 358 | |
| 1988 | 1 230 | |
| 1989 | 1 111 | |
| 1990 | 1 009 | |
| 1991 | 901 | |
| 1992 | 794 | |
| 1993 | 729 | |
| 1994 | 665 | |
| 1995 | 595 | |
| 1996 | 514 | |
| 1997 | 463 | |
| 1998 | 382 | |
| 1999 | 341 | |
| 2000 | 293 | |
| 2001 | 242 | |
| 2002 | 229 | |
| 2003 | 200 | |
| 2004 | 176 | |
| 2005 | 158 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 183.043 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 37.011 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 30.140 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 6.871 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | | |
| ___ | Waterflooding | | |
| ___ | $CO_2$ | | |
| ___ | Hydrocarbon | | |
| ___ | Chemical Flooding | | |
| ___ | Thermal Techniques | | |
| ___ | Other: | | |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Total - Westspur Pipe Line Company
POOL: S.E. Saskatchewan Light
UNIT:

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 4 856 | |
| 1983 | 5 549 | |
| 1984 | 5 073 | |
| 1985 | 4 714 | |
| 1986 | 4 216 | |
| 1987 | 3 858 | |
| 1988 | 3 524 | |
| 1989 | 3 214 | |
| 1990 | 2 941 | |
| 1991 | 2 676 | |
| 1992 | 2 428 | |
| 1993 | 2 231 | |
| 1994 | 2 050 | |
| 1995 | 1 832 | |
| 1996 | 1 628 | |
| 1997 | 1 490 | |
| 1998 | 1 329 | |
| 1999 | 1 181 | |
| 2000 | 1 048 | |
| 2001 | 945 | |
| 2002 | 881 | |
| 2003 | 756 | |
| 2004 | 691 | |
| 2005 | 619 | |

C. OIL RESERVOIR DATA
For Established Reserves
at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^6m^3$ | 426.957 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | |
| Improved Recovery, % | |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 116.510 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 95.284 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 21.226 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ |
|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ |
| ___ | Waterflooding | ___ | ___ |
| ___ | $CO_2$ | ___ | ___ |
| ___ | Hydrocarbon | ___ | ___ |
| ___ | Chemical Flooding | ___ | ___ |
| ___ | Thermal Techniques | ___ | ___ |
| ___ | Other: ___ | ___ | ___ |
| ___ | No Potential | | |

Comments:

# CRUDE OIL RESERVES AND PRODUCTIVE CAPACITY DATA SHEET

A.
SUBMITTOR: Saskatchewan Energy and Mines
DATE: January 1, 1984

FIELD: Total Province
POOL:
UNIT:

B. PRODUCTIVE CAPACITY FORECAST

| YEAR | $m^3$ per day From Established Reserves at 1983-01-01 | From Reserves Additions in Section D |
|---|---|---|
| 1982 (production) | 22 204 | |
| 1983 | 24 530 | |
| 1984 | 22 659 | |
| 1985 | 20 613 | |
| 1986 | 18 806 | |
| 1987 | 16 933 | |
| 1988 | 15 382 | |
| 1989 | 14 009 | |
| 1990 | 12 796 | |
| 1991 | 11 700 | |
| 1992 | 10 541 | |
| 1993 | 9 561 | |
| 1994 | 8 741 | |
| 1995 | 7 827 | |
| 1996 | 7 081 | |
| 1997 | 6 317 | |
| 1998 | 5 404 | |
| 1999 | 4 814 | |
| 2000 | 4 296 | |
| 2001 | 3 791 | |
| 2002 | 3 449 | |
| 2003 | 3 054 | |
| 2004 | 2 726 | |
| 2005 | 2 484 | |

C. OIL RESERVOIR DATA
For Established Reserves at 1983-01-01

| | |
|---|---|
| Area, ha | |
| Average pay, m | |
| Rock Volume, $10^4m^3$ | |
| Porosity, % | |
| Connate Water, % | |
| Shrinkage, % | |
| Initial oil in place, $10^3m^3$ | 2 344.287 |
| Hor. permeability, mD | |
| Vert. permeability, mD | |
| Pressure-Datum, m SS | |
| Initial Pressure, kPa | |
| Initial oil viscosity, mPa.s | |
| Current pressure, kPa | |
| Current oil viscosity, mPa.s | |
| Primary Recovery, % | 10.16 |
| Improved Recovery, % | 6.43 |
| Improved Recovery Mechanism | |
| Total Recoverable Oil, $10^6m^3$ | 389.030 |
| Cumulative oil production to 1983-01-01, $10^6m^3$ | 290.767 |
| Remaining Established Reserves at 1983-01-01, $10^6m^3$ | 98.263 |

D. POTENTIAL RESERVES ADDITIONS

| Check | Improved Recovery Mechanism | # of New Wells | Incremental Recovery $10^6m^3$ | Comments: |
|---|---|---|---|---|
| ___ | Infill Drilling | ___ | ___ | |
| ___ | Waterflooding | ___ | ___ | |
| ___ | $CO_2$ | ___ | ___ | |
| ___ | Hydrocarbon | ___ | ___ | |
| ___ | Chemical Flooding | ___ | ___ | |
| ___ | Thermal Techniques | ___ | ___ | |
| ___ | Other: ___ | ___ | ___ | |
| ___ | No Potential | | | |